

CROWN AND REALM

SOUVENIR OF THE CORONATION OF  
KING GEORGE V



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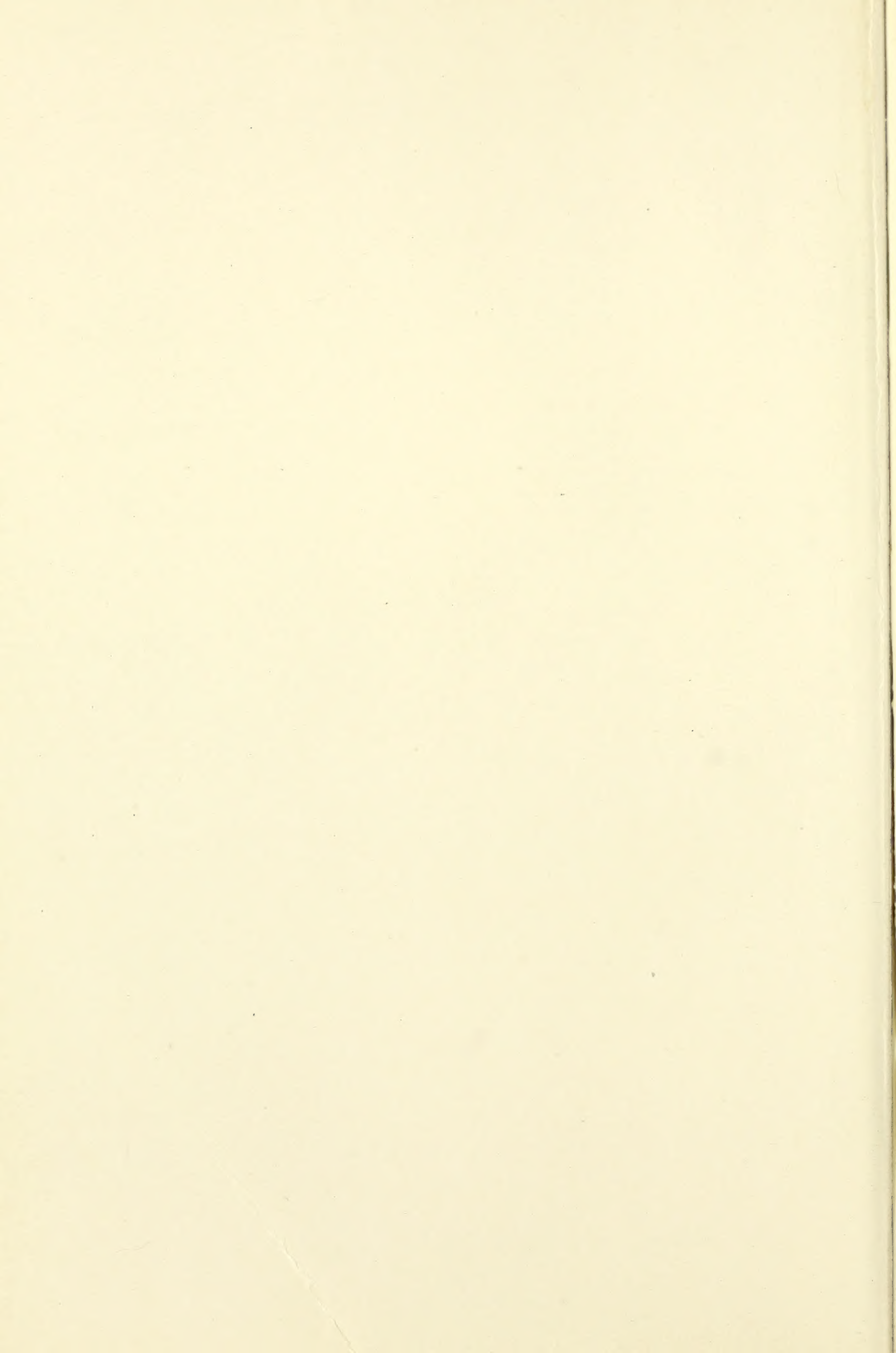


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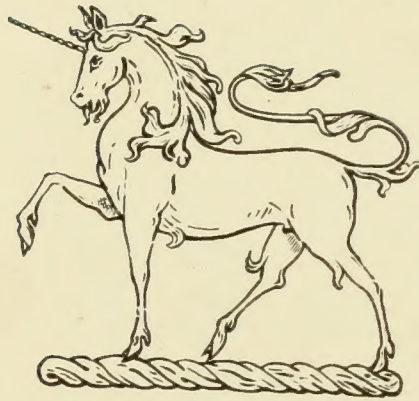












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CROWN AND REALM

A REVIEW OF THE BRITISH EMPIRE

ITS BUILDERS AND RULERS

SOUVENIR OF THE

CORONATION

OF

KING GEORGE V.

With the Compliments of

BURROUGHS WELLCOME & CO., LONDON

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“That was a great moment in the history of human institutions when, for the first time, soldiers upon the battlefield, clearing a space with their swords, lifted their leader upon a shield and acclaimed him their King — *König* — ablest and most knowing one.”



## INTRODUCTION

KING GEORGE V. takes his seat upon the throne of his ancestors by hereditary right, and also by the deliberate choice, and with the enthusiastic approval, of the entire race over which he rules. The solemnity of his Coronation is the natural expression of the desire to emphasise and commemorate a pact of fealty of twofold character—the loyalty of Britons to their King, and the loyalty of the King to his people.

The family pedigree of His Majesty is a remarkable one, rivalling in splendour and antiquity that of any monarch among the present ruling houses of Europe, or among the chronicles of authentic history.

The roots of it lie deep in the glorious annals of brave and warlike peoples, the subsequent history of whose struggles for freedom and for empire, reveals reverence for the past, and determination to hold sacred the laws which gave solidity and coherence to their growing state.

Not only is King George the direct lineal descendant of a long line of Norman, Tudor, Plantagenet and Stuart Kings, but he is also the veritable successor, through Edgar Atheling's sister, the Princess Margaret, of Alfred the Great, the far-seeing lawgiver and the founder of England's sea power; of Egbert and other worthies of the old Saxon Monarchy, and also of the Malcolms and Kenneths of Scotland; of the heroic Bruce, and the mighty Alpin, founder of the Scottish line.

Apart altogether from its connection with the throne of England, the family of the Guelphs, to which His Majesty belongs, has enjoyed, for over a thousand years and through the varying fortunes of some thirty-three generations, a princely rank in Europe.

Guelph, or Wlph, was the name of an early leader of the Scyrri, a Gothic people inhabiting the shores of the Baltic, and some of the Danish islands of the Great Belt, when,



in the days of Rome's decadence Attila, the Hun, swept like the "Scourge of God" across Europe from the Caspian Sea. At the middle of the fifth century, a Guelph was in possession of Noricum, the classic Rhætia of the antients, now the Tyrol.

In the eleventh century, Albert-Azzo II., Lord of Este, married Cunegonde, the heiress of Guelph, Duke of Carinthia. Their son added to his patrimony the dominion of Guelph of Bavaria, and a notable descendant of his, Henry the Lion, married Maud, daughter of Henry II. of England, and was the founder of the Brunswick family.

How the House of Brunswick, connected as it was already by marriage with the antient royal dynasties of England, came at last to the throne itself is a familiar story.

The eldest daughter of James I. married Frederick V., the Elector Palatine, a brave but unsuccessful champion of Protestantism. His daughter Sophia married Ernest Augustus, Duke of Brunswick-Luneberg, afterwards Elector of Hanover. Upon the death of Queen Anne, without surviving children, George Lewis, the son of the Electress, was the sole protestant prince in the direct line of succession, and, in accordance with the Act of Settlement, he was proclaimed on August 1, 1714, King of Great Britain and Ireland.

As is to be expected in the ceremonials of an antient people, deeply imbued with the love of historic tradition, the coronation itself is based upon long-continued and oft repeated precedents, dating back to a remote period, and is full of symbolic significance.

The earliest coronation of a Christian prince within the limits of Great Britain and Ireland is said to be that of Dermot, or Diamid, who was crowned as supreme monarch by his relative Columba, about A.D. 550.

The first Emperor of Britain was Claudius Albinus, who was made Governor of Britain by Commodus, A.D. 192, and declared Cæsar by Severus in A.D. 193.

It is probable that the first form of actual diadem was a simple string of beads, following which came the bead



## INTRODUCTION—*continued*

fillet of some soft material which was worn as a mark of authority. In Britain, about the tenth century, the bead fillet gave way to a solid metal circlet, possibly due to the wish of the ruler to wear some distinctive mark of his rank in battle. On an Anglo-Saxon coin bearing the head of Æthelstan, the helmet is adorned with a solid circlet bearing three pearls on raised stems. From this period the evolution of our English crown can be followed with some certainty.

William I. is represented on the Great Seal with a coronet on which the single pearls on their stalks have become triplicated. This triple arrangement of separate pearl ordots became the single trefoil, which may be seen on the head of Henry I., as represented on the Great Seal in his time.

Since the time of Ethelred, the outward form of coronation in Britain remained unaltered in its essential features down to the time of George IV.

The following pages illustrate the rite of Coronation from the earliest times, the crown and regalia of the British Realm, its present extent, and some of its builders, monarchs and rulers.

H. S. W.









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His Most Excellent Majesty

GEORGE THE FIFTH

King of Great Britain and Ireland and of the British Dominions beyond  
the Seas, Emperor of India

Born June 3, 1865 ; succeeded to the Throne, May 6, 1910





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Her Majesty QUEEN MARY  
Born May 26, 1867





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His Royal Highness  
EDWARD ALBERT, Prince of Wales  
Born June 23, 1894





QUEEN ALEXANDRA and her family, including KING GEORGE  
in 1875





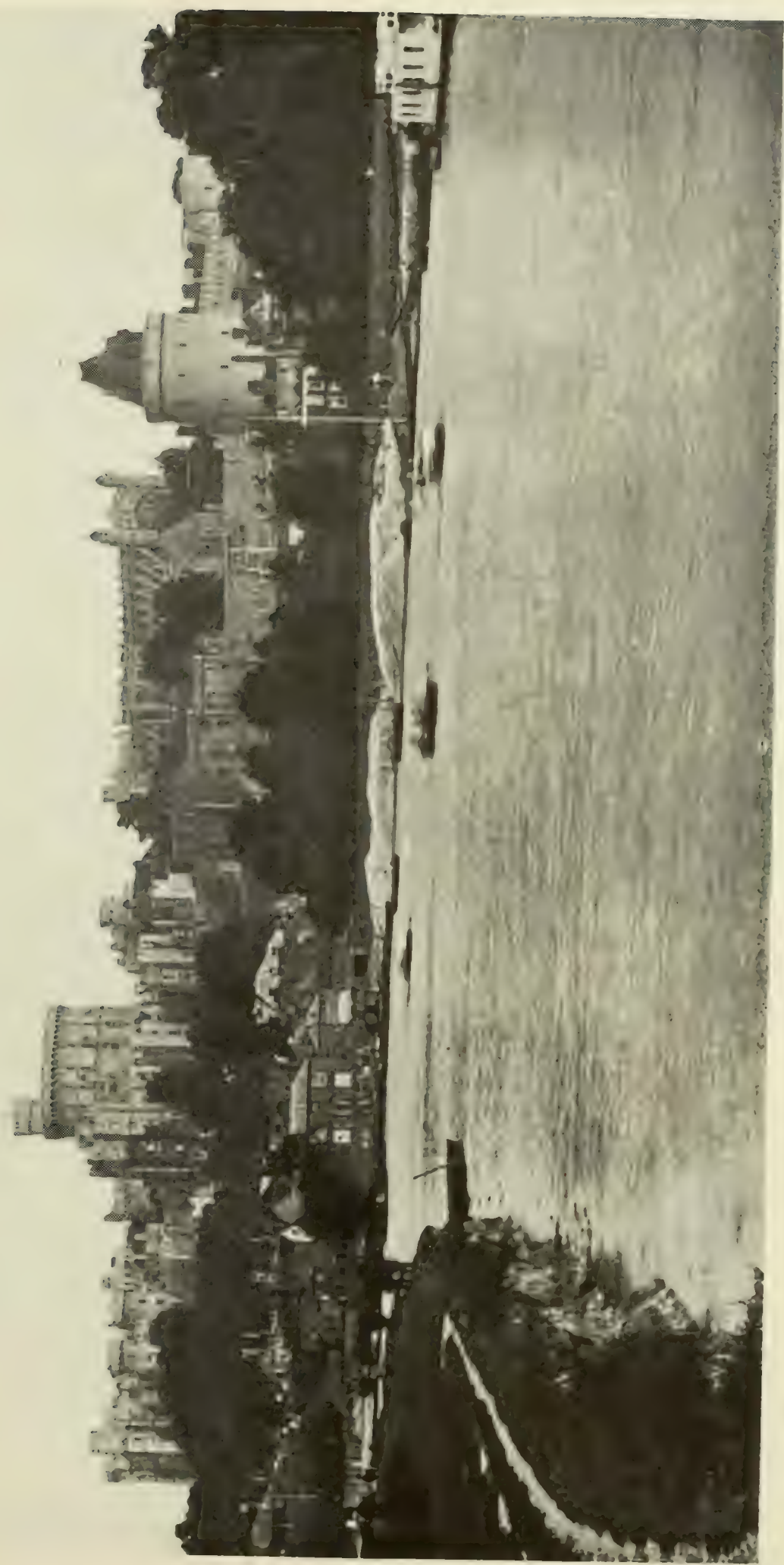
Marriage of GEORGE V., as Prince of Wales, to Her Serene Highness Princess Victoria Mary Augusta Louise  
Olga Pauline Claudine Agnes, at the Chapel Royal, St. James's, July 6, 1893





HIS ROYAL HIGHNESS THE DUKE OF CONNAUGHT  
Who will proceed to Canada as Governor-General after the Coronation





### WINDSOR CASTLE

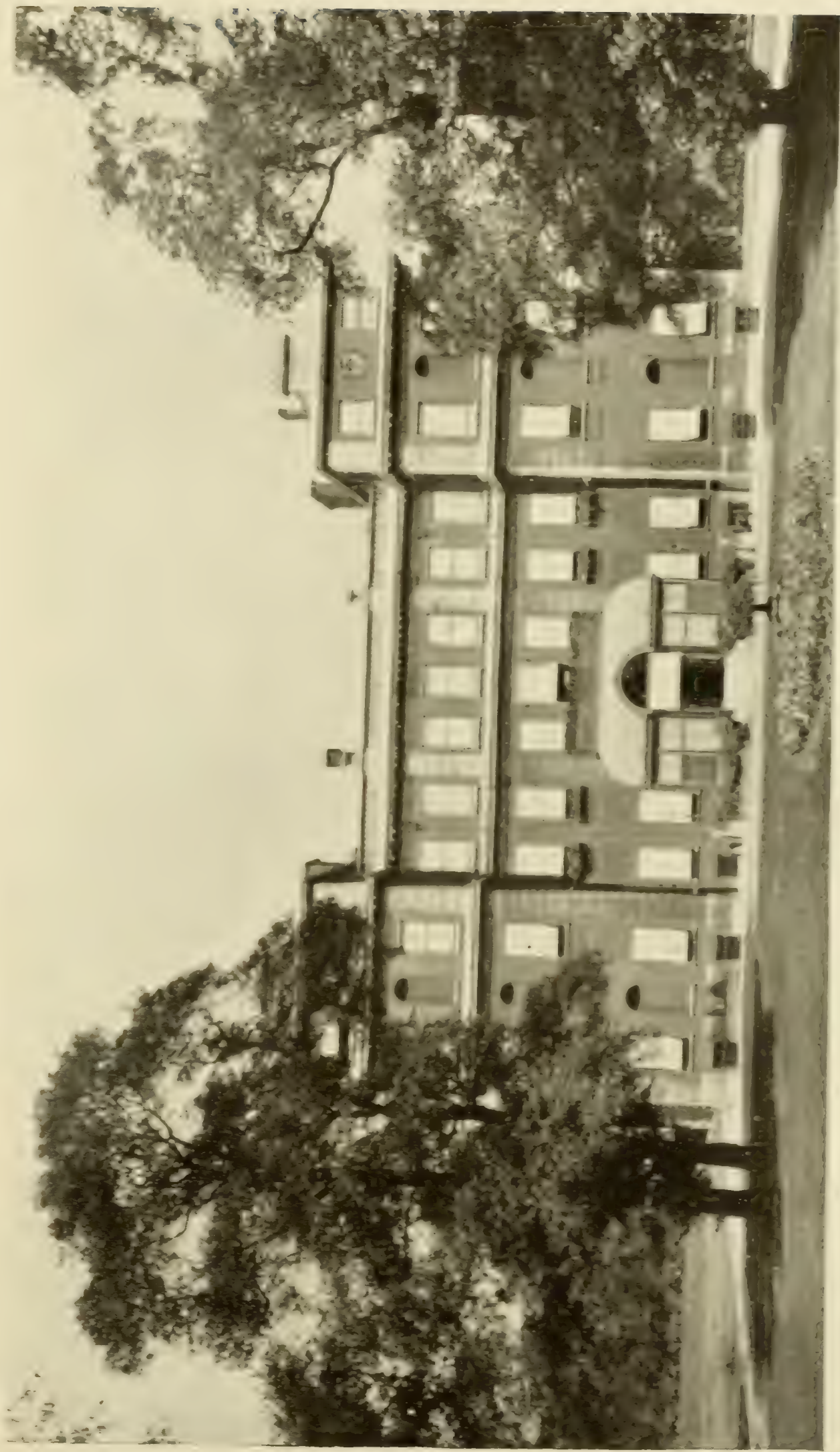
The chief Residence of British Sovereigns since the time of William the Conqueror





BUCKINGHAM PALACE  
The London Residence of the Sovereign





MARLBOROUGH HOUSE

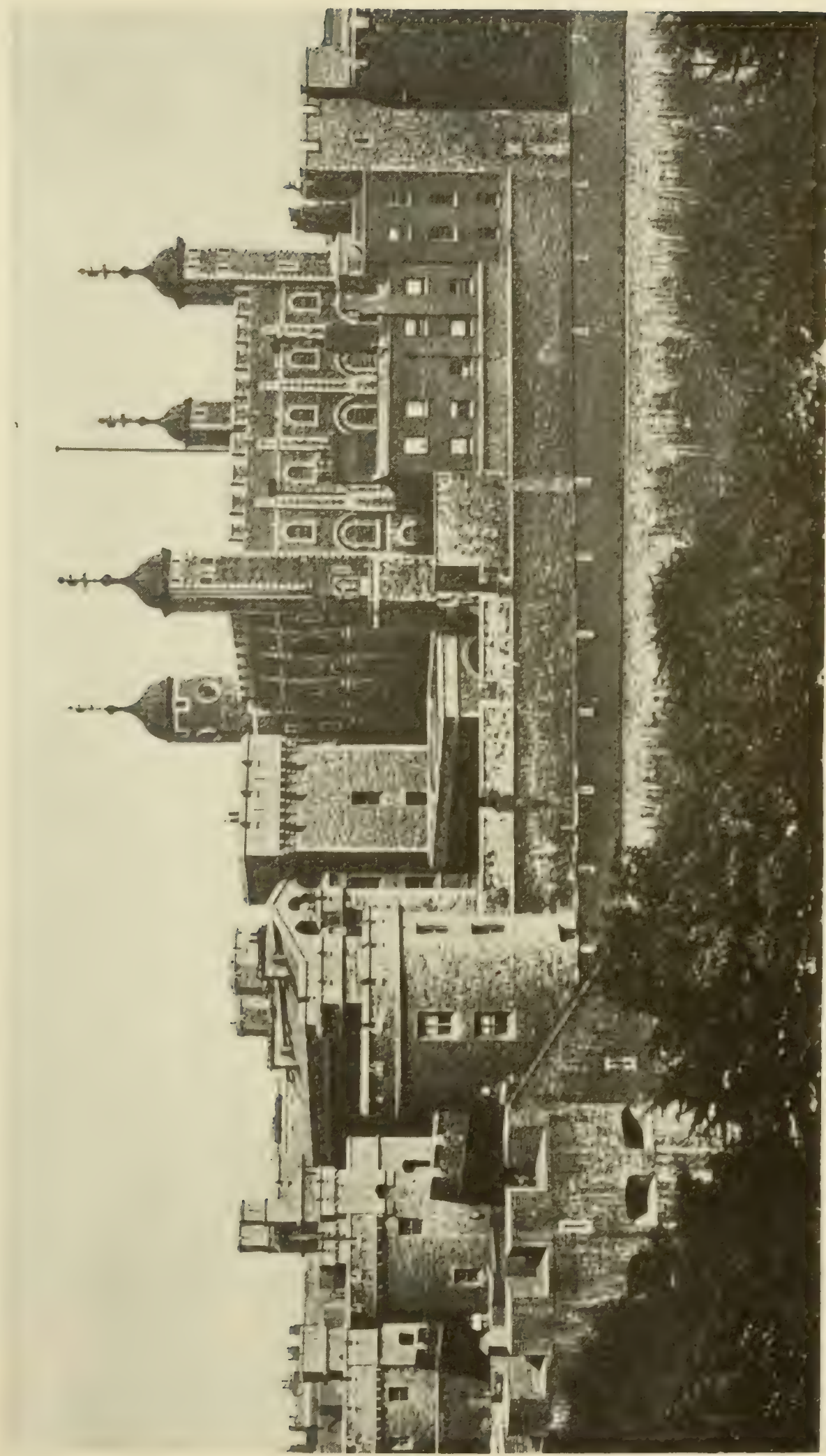
Another Royal Residence in London. For many years the Town House of his late Majesty King Edward VII., while Prince of Wales, and the Residence of King George V., before his accession to the Throne.





SANDRINGHAM  
The home of King George during his boyhood





### THE TOWER OF LONDON

In which the Crown Jewels are kept in safe custody.  
Tradition ascribes its origin to Julius Caesar. The nucleus of the present building was begun in 1078

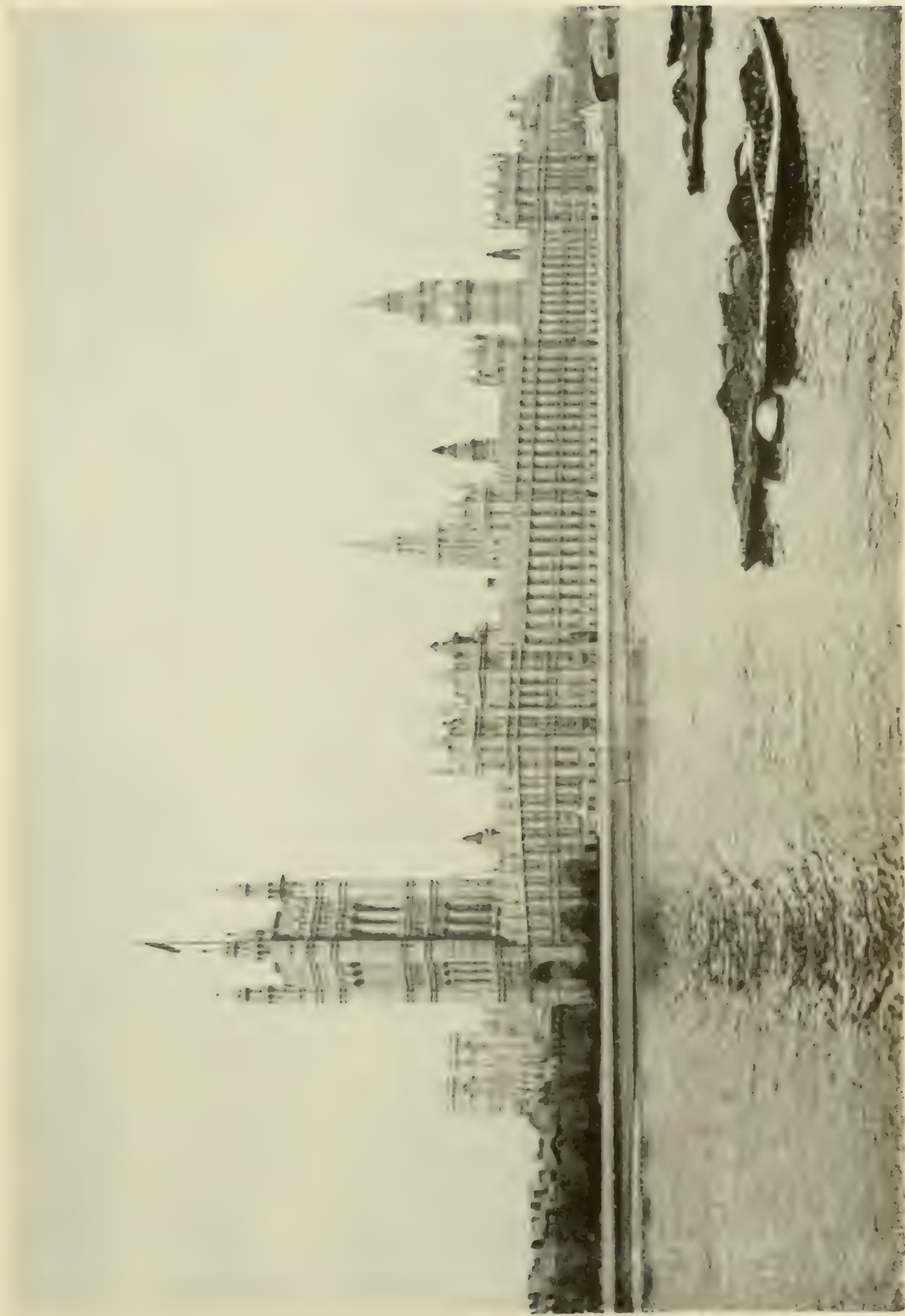




WESTMINSTER ABBEY

Where the Coronation of British Kings takes place  
Founded on the site of an earlier Church by Edward the Confessor,  
and rebuilt in the XIII century by Henry III. and Edward I.

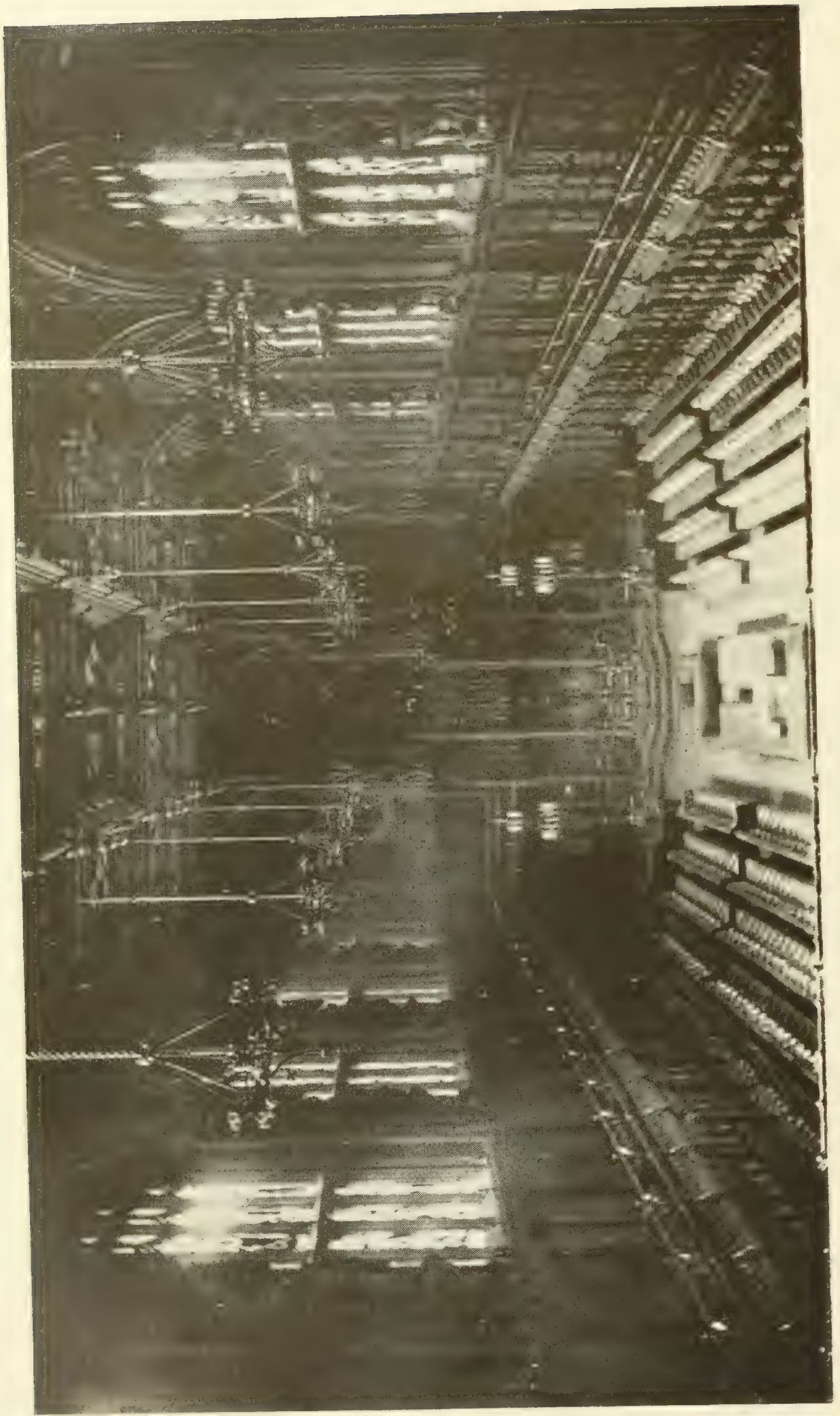




WESTMINSTER PALACE—THE HOUSES OF PARLIAMENT

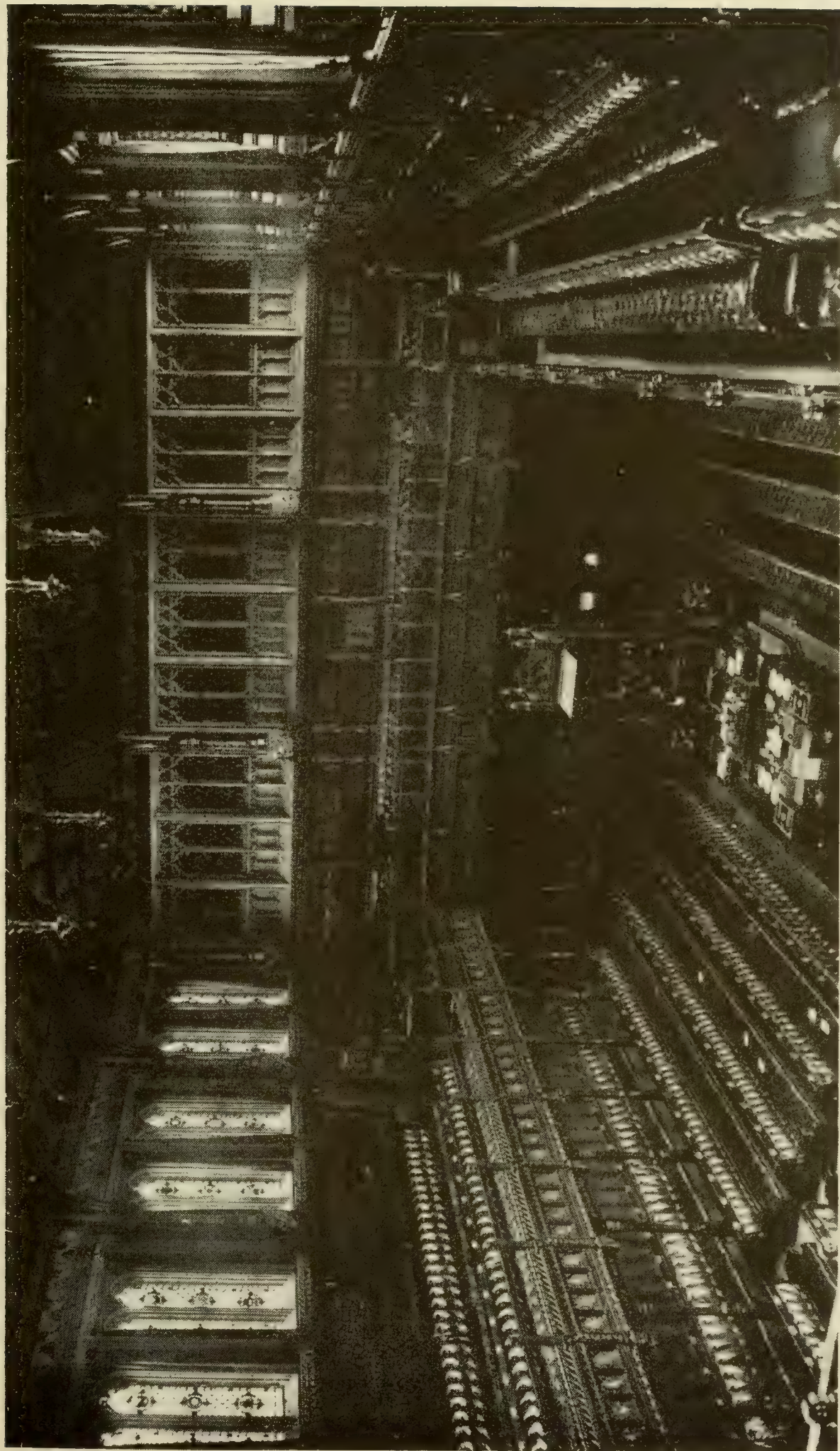
The old Houses of Parliament having been burnt down in 1834, this fine pile of buildings, designed by Sir Charles Barry, was commenced in 1840, and first occupied by the Lords in 1847, and by the Commons in 1852.





THE HOUSE OF LORDS





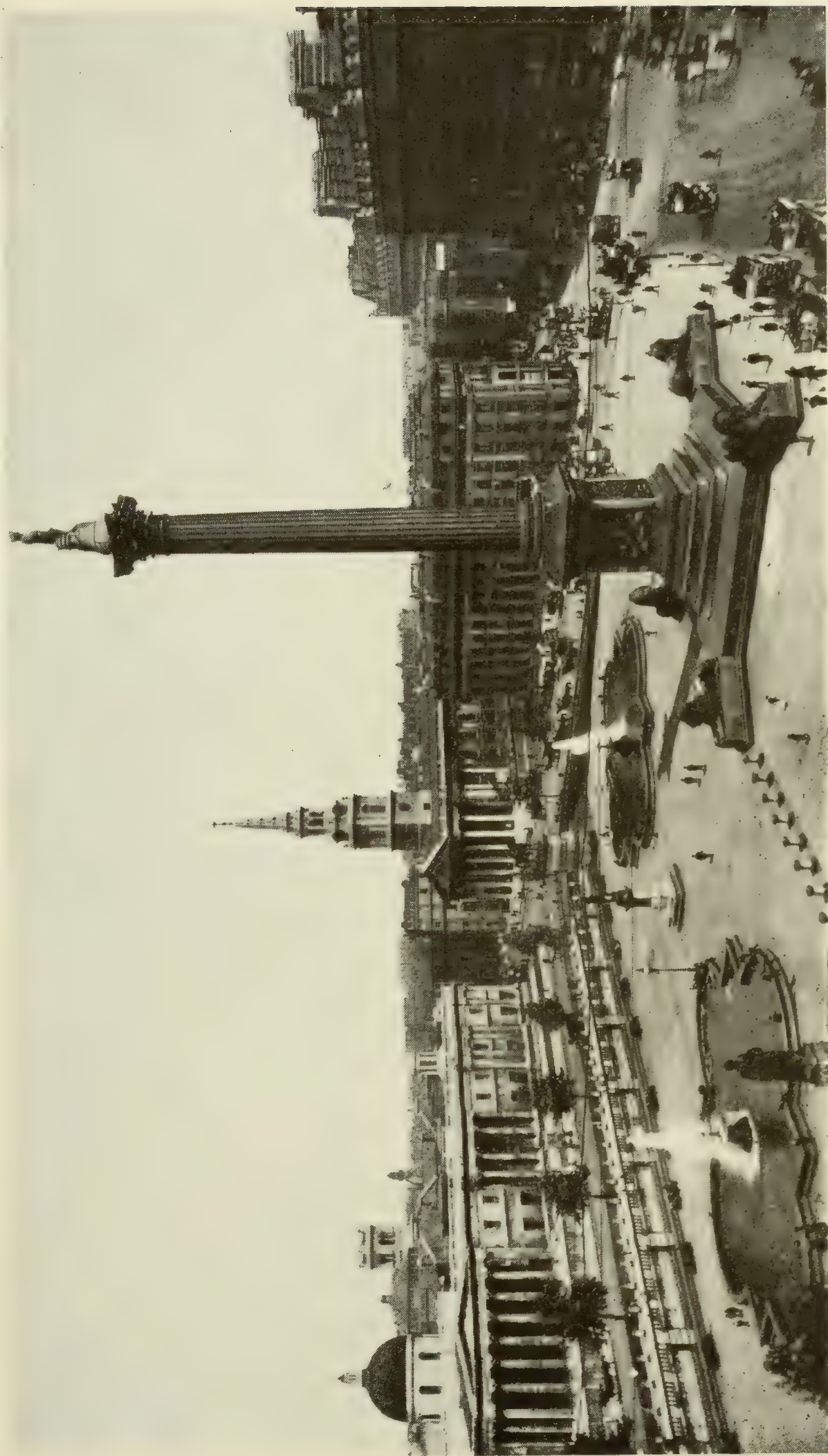
THE HOUSE OF COMMONS  
The Home of the "Mother of Parliaments"





ST. PAUL'S CATHEDRAL  
Designed by Sir Christopher Wren  
Begun in 1675 and completed in 1710





TRAFALGAR SQUARE  
Through which the Coronation procession passes





THE ROYAL EXCHANGE AND BANK OF ENGLAND

From the steps of the Royal Exchange, King George's Accession was proclaimed by the Lord Mayor of London, in accordance with an old-established custom.



THE PATRON SAINTS  
OF THE  
UNITED KINGDOM





ST. GEORGE  
The Patron Saint of England

According to the *Acta Sanctorum*, St. George was born of noble parents in Cappadocia, and became a distinguished soldier, but was tortured and put to death by Diocletian at Nicomedia, on April 23, 303. The St. George of the Eastern Church was no doubt a real personage of earlier date. The cult of St. George inspired many chivalrous orders among the crusaders, and he was adopted as the tutelary saint of England.

Edward III. founded St. George's Chapel, Windsor, in 1348





### ST. PATRICK

#### The Patron Saint of Ireland

Probably born in Bonaventia, somewhere near Waventry, in 386. When sixteen, he was captured by pirates and sold as a slave to an Irish chieftain named Milchu. He escaped and became a monk in France. Ordained Bishop at forty-five, at sixty he returned to Ireland as a missionary. He is reported to have founded 365 churches and baptised 12,000 persons.





ST. ANDREW

The Patron Saint of Scotland

Said to have been martyred by crucifixion, 30 November, 69, at Patroe in Achaia. His festival was instituted about 359.

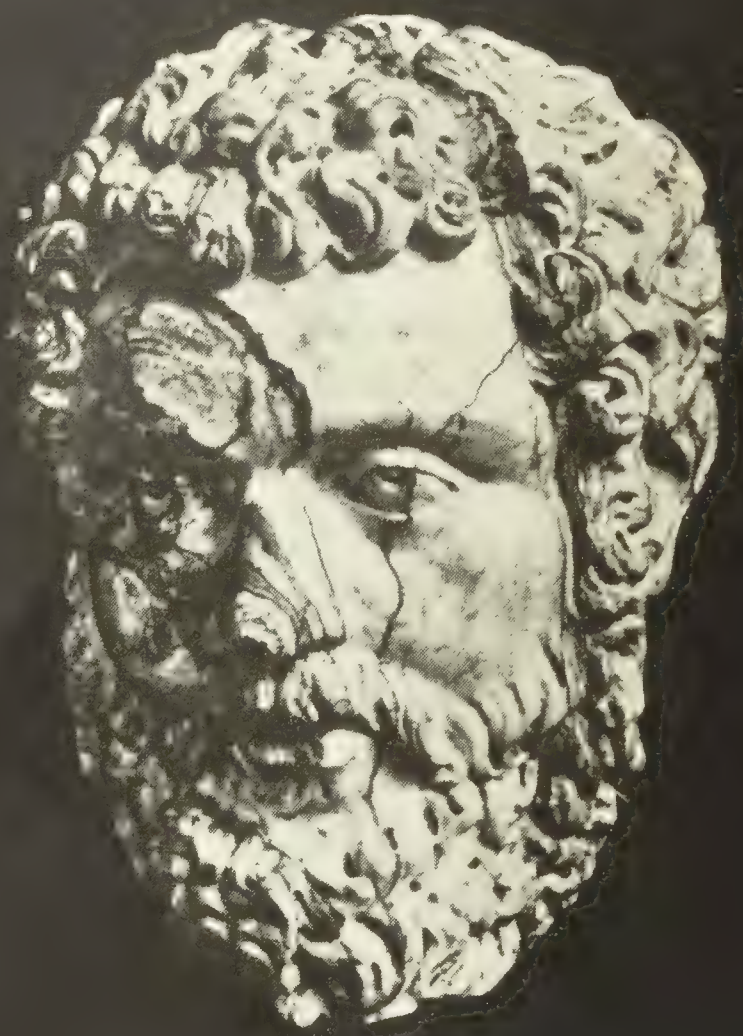




ST. DAVID  
The Patron Saint of Wales

St. David (Dewi Sant) is believed to have been of royal descent, and is said to have crowned King Arthur. He became Bishop of Moni Judeorum, or Menevia, afterwards St. David's, and presided over two Welsh Synods. He died in 601.





ALBINUS

Claudius Albinus, the first crowned Emperor of Britain, was appointed Governor by Commodus, A.D. 192, and was declared Cæsar by Severus in the following year.

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THE EVOLUTION  
OF  
NATIONAL ARMS

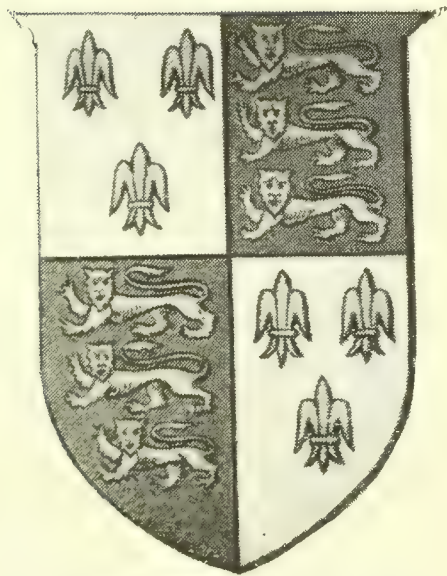




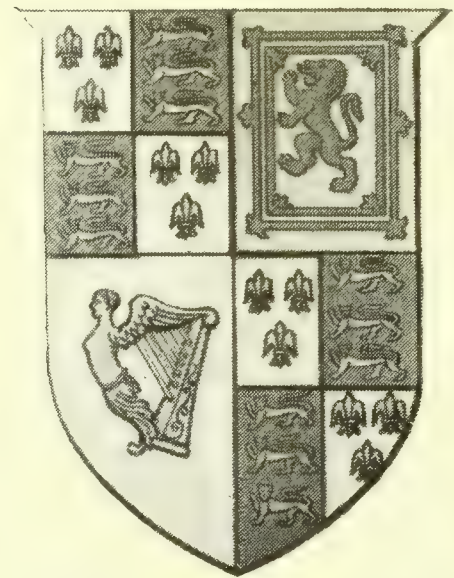
Royal Shield at the time  
of Richard the First  
A.D. 1195  
The lion was first used as  
a Royal Shield by Henry I.  
A.D. 1100



Royal Arms from the  
time of Edward III,  
to Henry IV.  
1340-1405



Royal Arms from the  
time of Henry IV,  
to James I.  
1405-1605

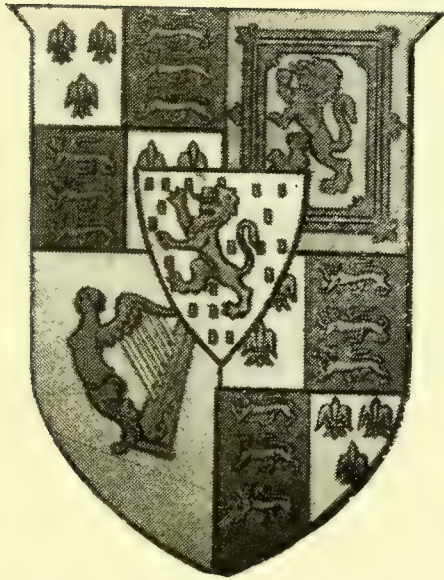


Royal Arms from the time  
of James I. to  
William III.  
1603-1689

## THE ROYAL ARMS OF ENGLAND

From A.D. 1195 to 1689





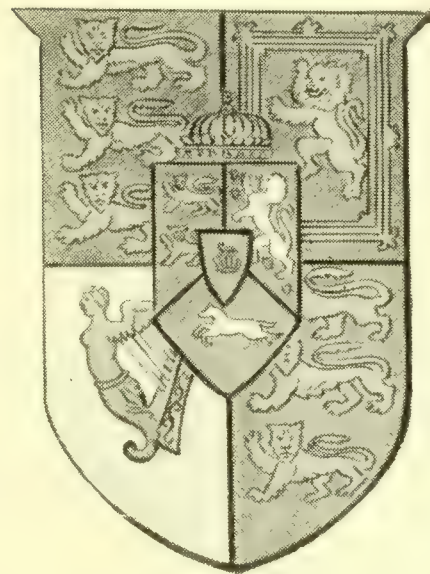
Royal Arms at the time of  
William III. 1689-1702



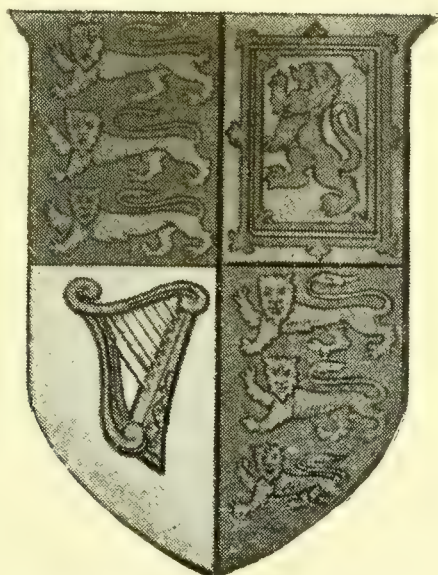
Royal Arms at the time of  
Queen Anne. 1702-1714



Royal Arms from the time of  
George I. to George III. 1714-1801



Royal Arms from  
1801-1837



Royal Arms from the time of  
Queen Victoria to George V.  
1838-1911

# THE ROYAL ARMS OF ENGLAND From A.D. 1689 to 1911





The White Horse Shield of the  
Anglo-Saxons



Crest of England



Shield of Ireland



Crest of Scotland



Shield of England



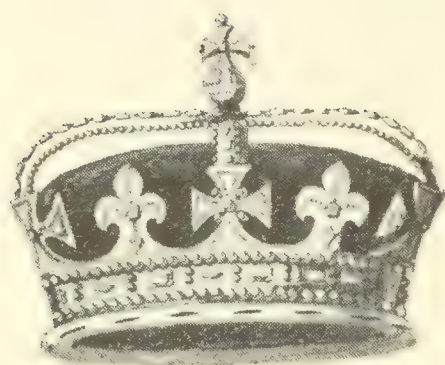
Shield of Wales

# NATIONAL ARMS AND HERALDIC EMBLEMS



CORONATION REGALIA  
AND  
SCENE OF THE CEREMONY

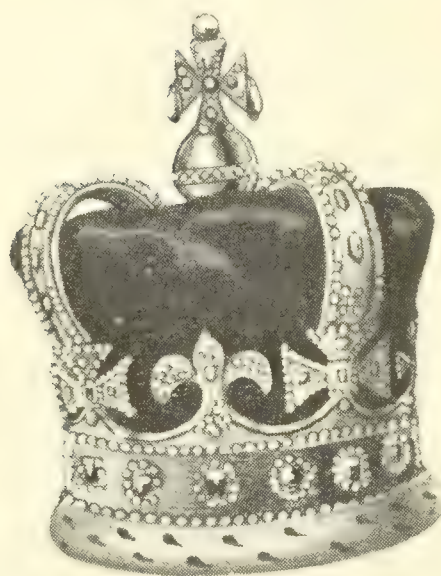




St. Edward's Crown  
after Sir E. Walker.



St. Edward's Crown  
as worn by  
James I.



St. Edward's Crown  
after Sandford  
First used by Charles I.



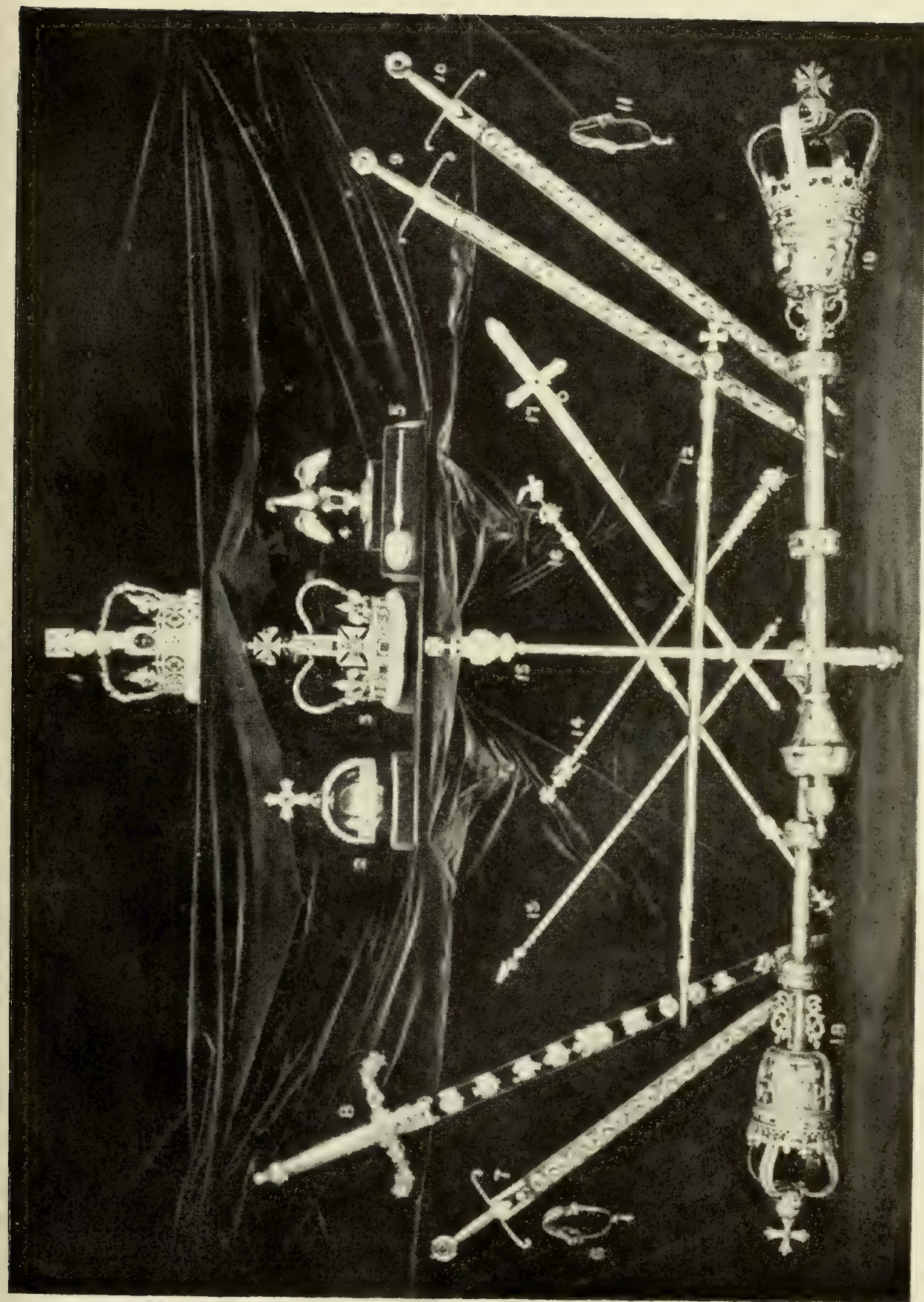
Queen Victoria's  
Imperial  
Crown of State



St. Edward's Crown  
as it is at present

## SOME FAMOUS CROWNS



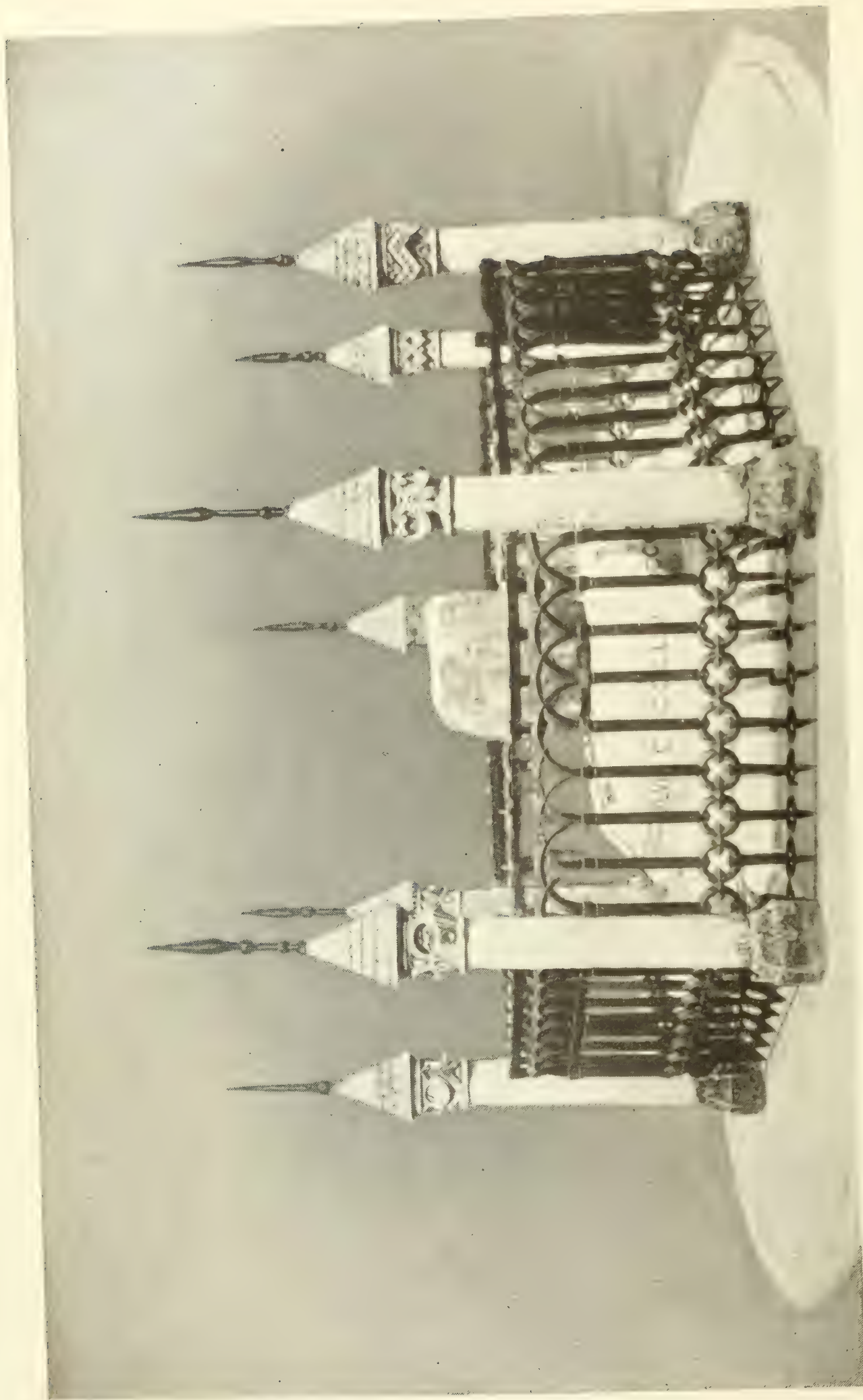


# THE KING'S REGALIA

To be used at the Coronation

1. The Imperial Crown
2. The Orb
3. St. Edward's Crown
4. The Ampulla
5. The Anointing Spoon
6. St. George's Spur
7. The Curtana, or Sword of Mercy
8. The State Sword
9. The Sword of Temporal Justice
10. The Sword of Spiritual Justice
11. St. George's Spur
12. St. Edward's Staff
13. The Ivory Sceptre
14. The Queen's Sceptre with Cross
15. The Royal Sceptre
16. The Sceptre with Dove
17. The State Sword of Offering
- 18 & 19. The Maces of the Sergeants-at-Arms





THE ANGLO-SAXON CORONATION STONE  
At Kingston-on-Thames, upon which seven Anglo-Saxon Kings were crowned from A.D. 901-975

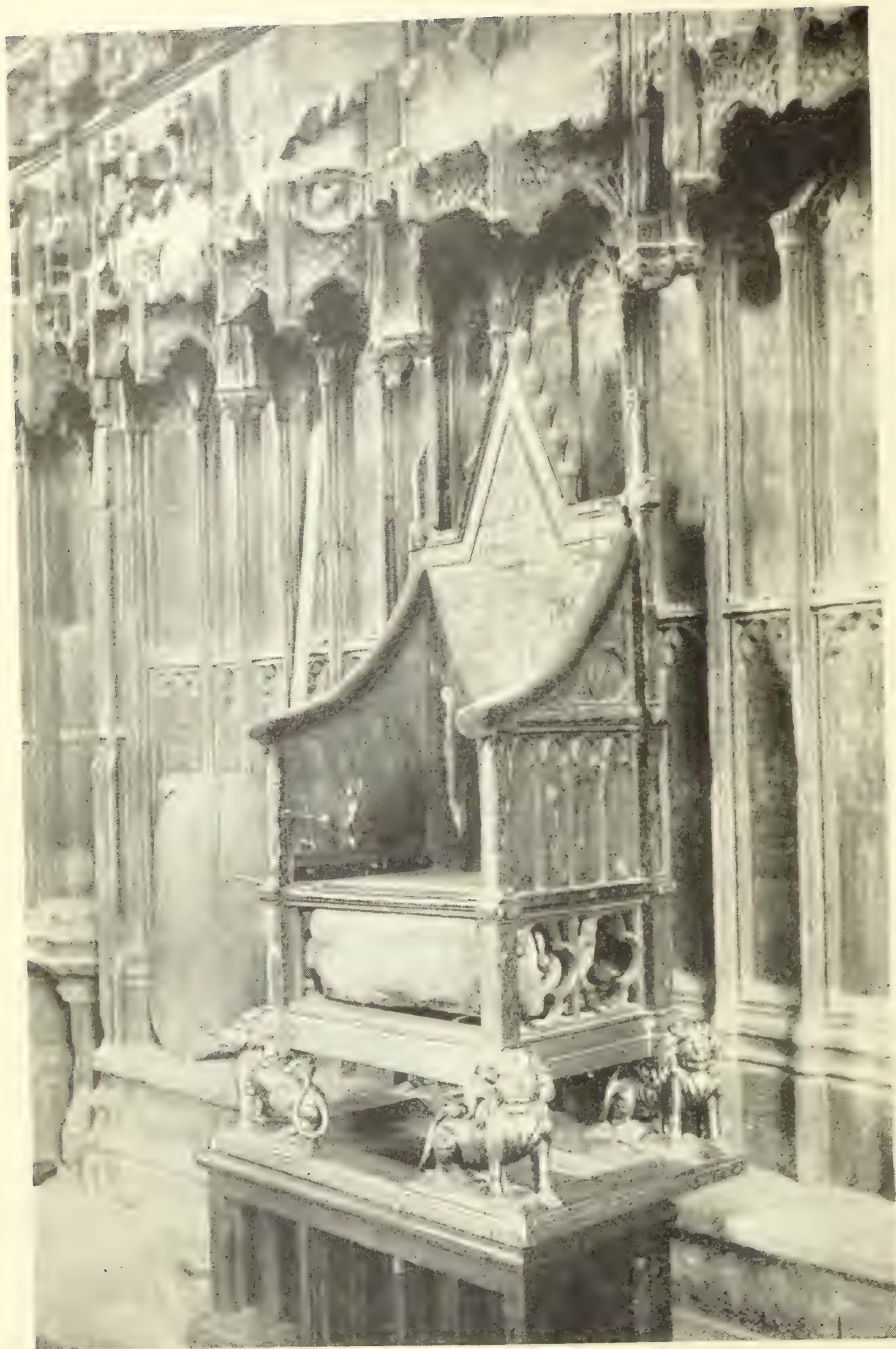




#### SCOTTISH CORONATION CHAIR

The Coronation Chair of Scotland, captured by Edward I. at Scone, 1296, which originally contained the Stone of Destiny.

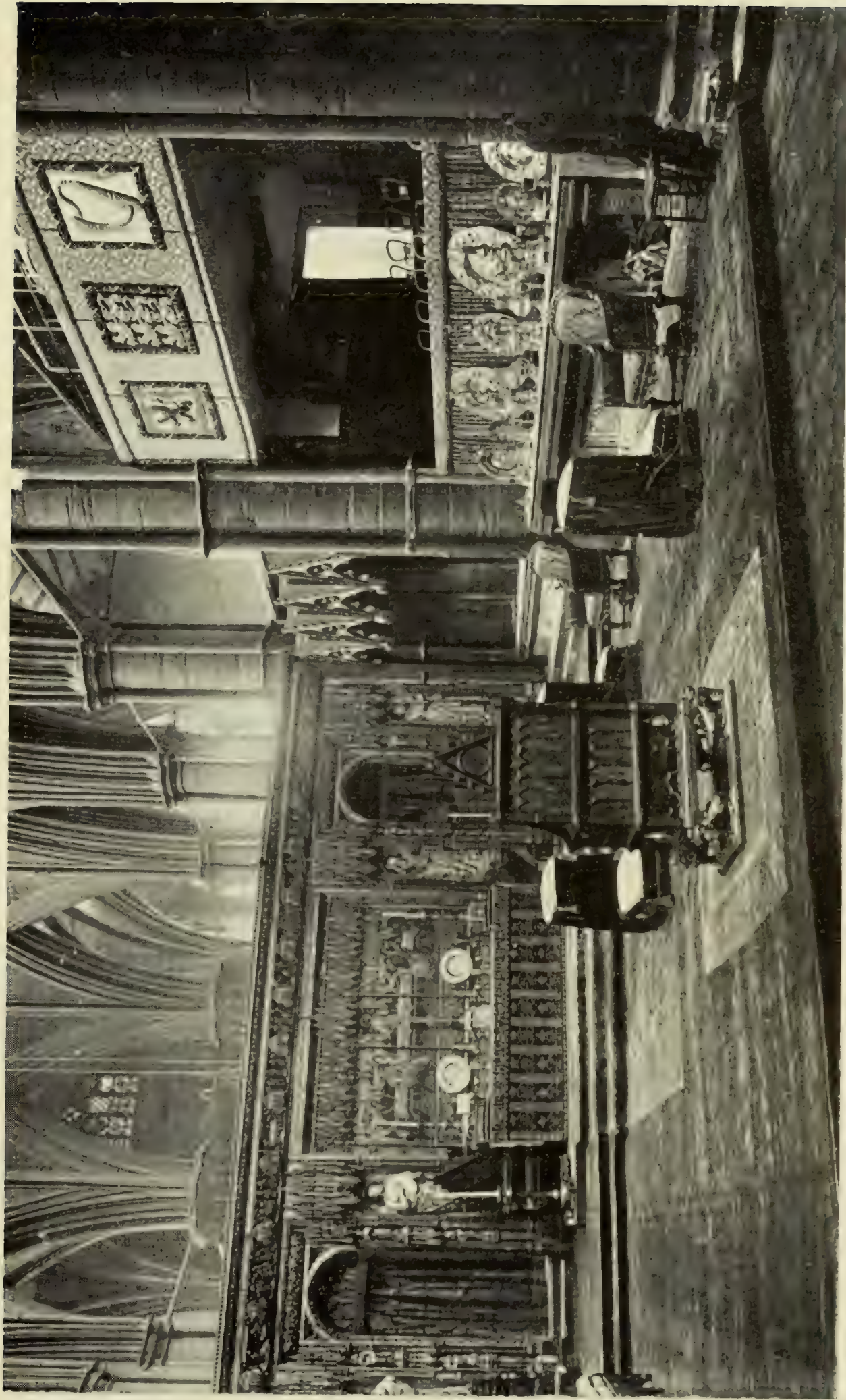




THE CORONATION CHAIR IN WHICH KING GEORGE  
WILL BE CROWNED

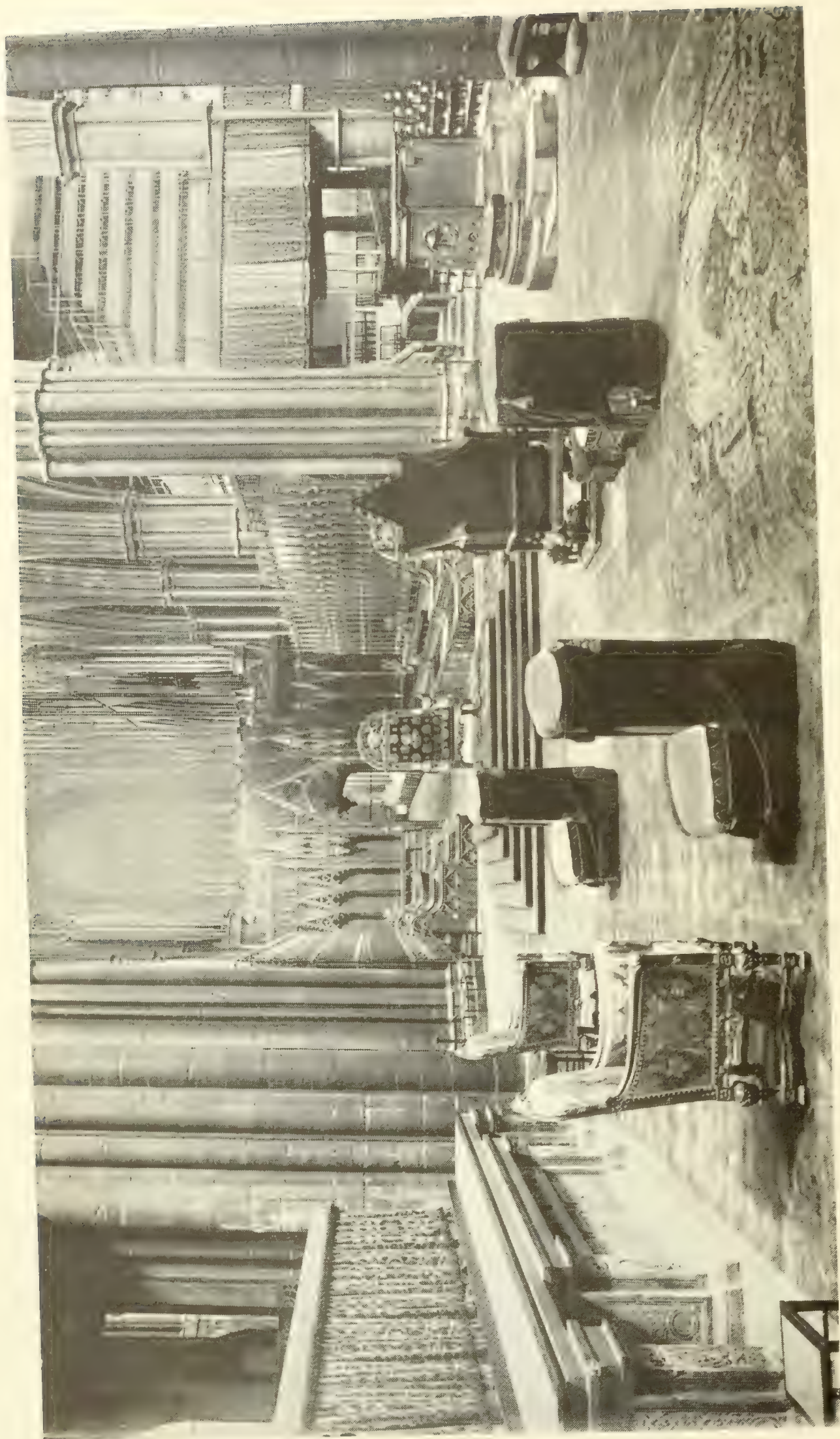
The Coronation Chair was made for Edward I. to enclose the famous stone of Scone, which he seized in 1297, and brought from Scotland to the Abbey, where he placed it under the Abbot's care. Upon this chair and stone, which are moved into the Sanctuary at Coronations, the Sovereigns of England have ever since been crowned. The only occasion upon which it has been taken out of the Abbey was when Oliver Cromwell was installed in it as Lord Protector in Westminster Hall.





INTERIOR OF WESTMINSTER ABBEY  
As arranged for the Coronation of Edward VII.—West View



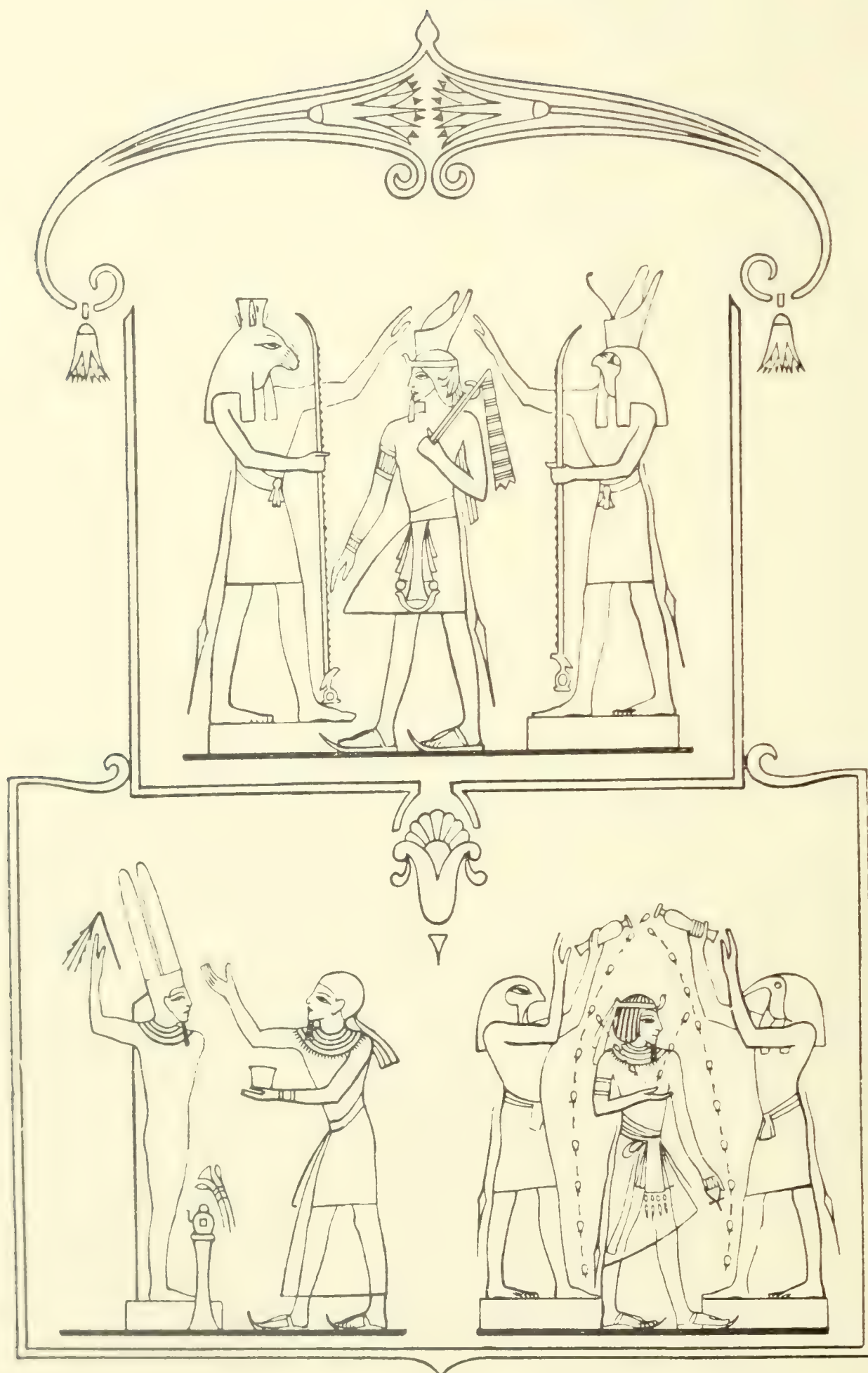


INTERIOR OF WESTMINSTER ABBEY  
As arranged for the Coronation of Edward VII.—East View



SOME NOTABLE  
CORONATION CEREMONIES





#### ANTIENT EGYPTIAN CORONATION CEREMONIES

*Above* is depicted the Coronation of Rameses II. *ca.* 1333 B.C. ; *below*, the anointing of Khem by Seti I., and the ceremony of purification by water.





THE CORONATION OF KING DAVID  
From a XV century MS.





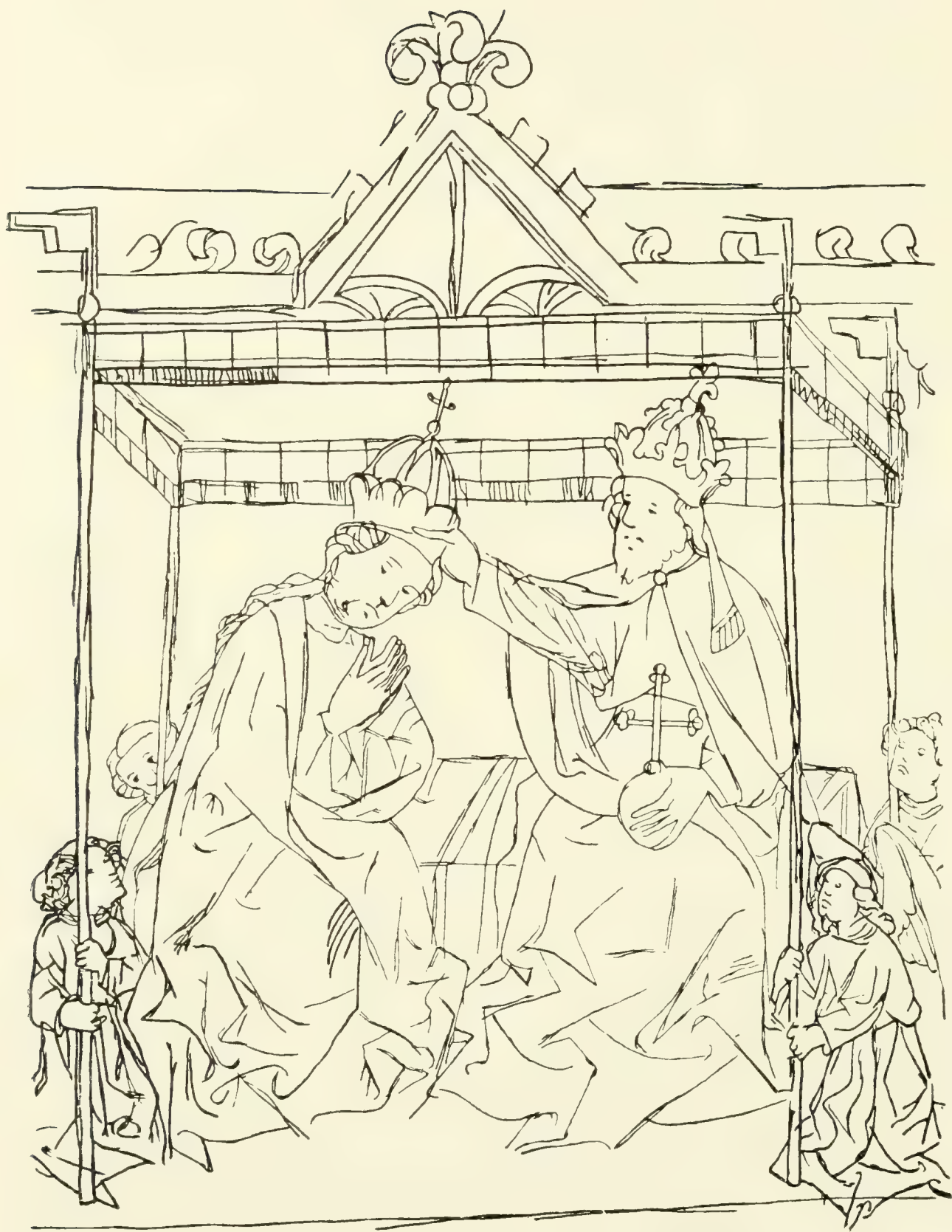
THE CORONATION OF KING SOLOMON  
From a XV century MS.





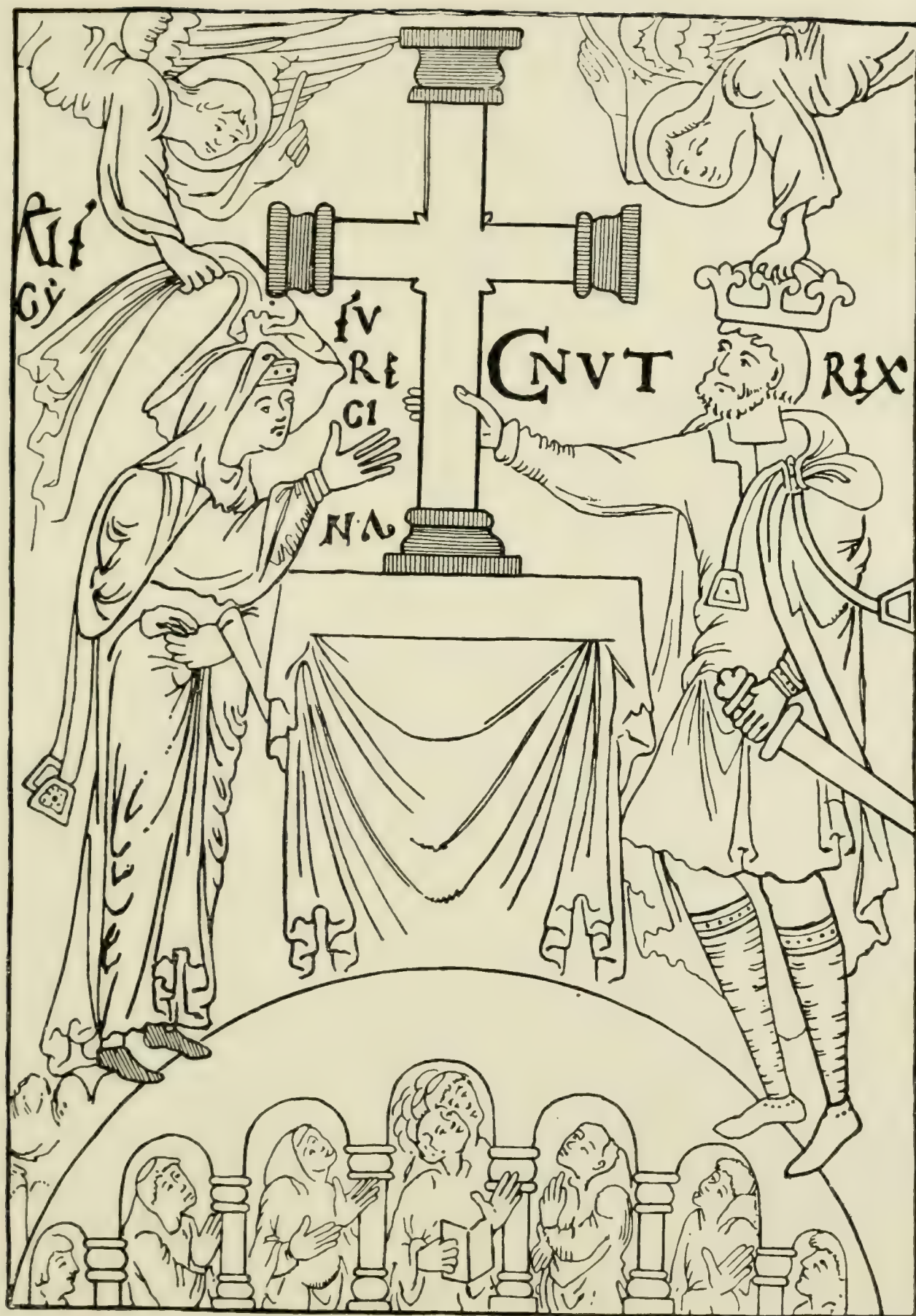
THE CORONATION OF AN EARLY BRITISH KING  
UNDER AN OAK TREE





CORONATION OF A VERY EARLY KING  
From a drawing of the XV century

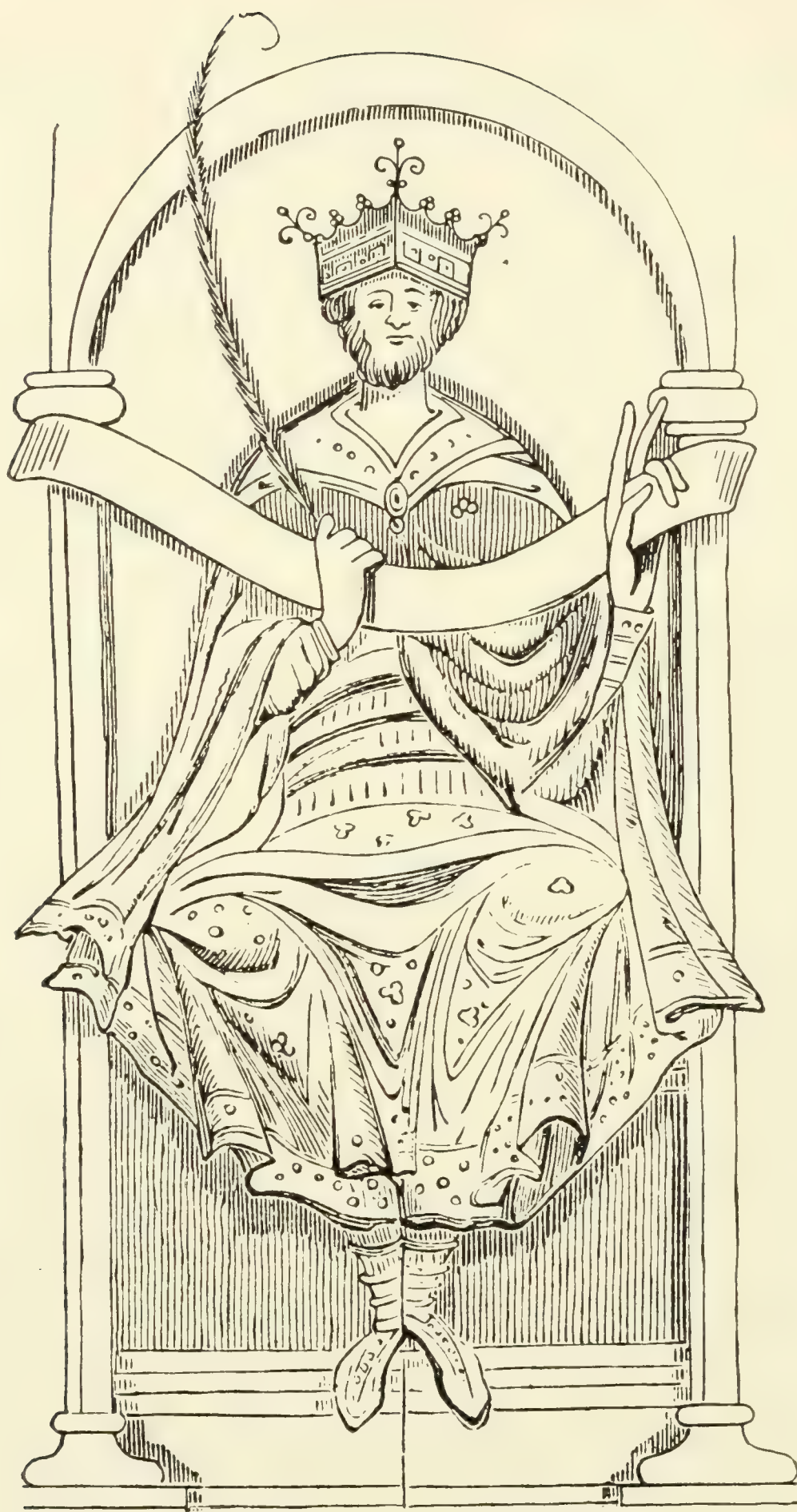




CORONATION OF KING CANUTE AND QUEEN EMMA

From an antient drawing





CORONATION OF KING EDGAR  
From an antient drawing





CORONATION OF EDWARD THE CONFESSOR  
From an MS. of the XIV century





CORONATION OF HAROLD  
From an MS. of the XIII century





CORONATION OF WILLIAM THE CONQUEROR

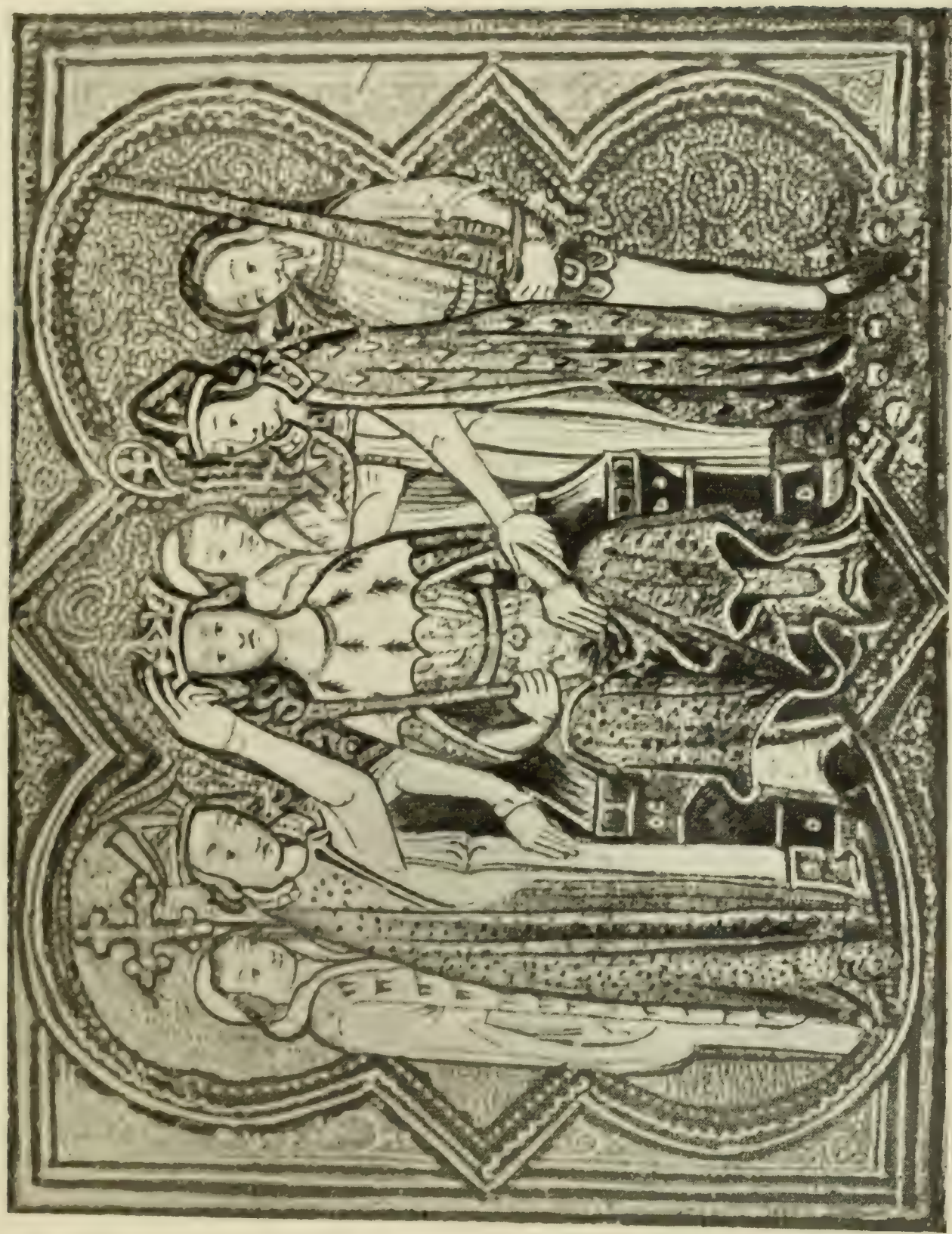




CORONATION OF AN ANTIENT KING  
From an MS. of the XI century

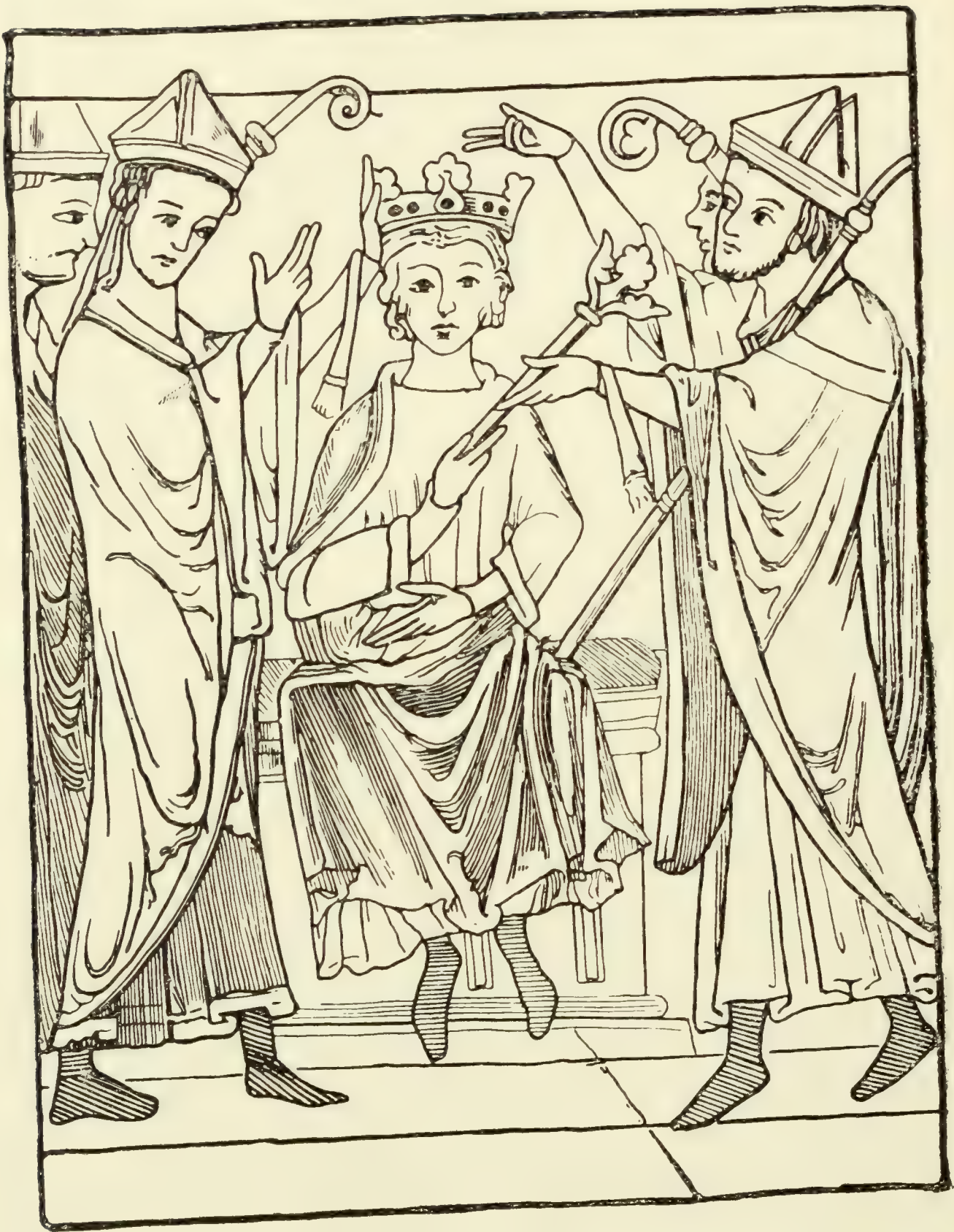
From "English Coronation Records" by L. G. Legg, published by Messrs.  
CONSTABLE & CO., and reproduced from an XI century MS. in the  
possession of Sir GEORGE HOLFORD.





CORONATION OF AN EARLY ENGLISH KING  
From an MS. of the XIV century





THE CROWNING OF THE YOUNG KING  
SON OF HENRY II.

From an MS. of the XIV century

Reproduced from "Green's History of the English People," by permission of  
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CORONATION OF HENRY III.

From an antient drawing





CORONATION OF EDWARD I  
From an MS. of the XV century





CORONATION OF EDWARD II.

A.D. 1307

From an MS. of the XIV century.

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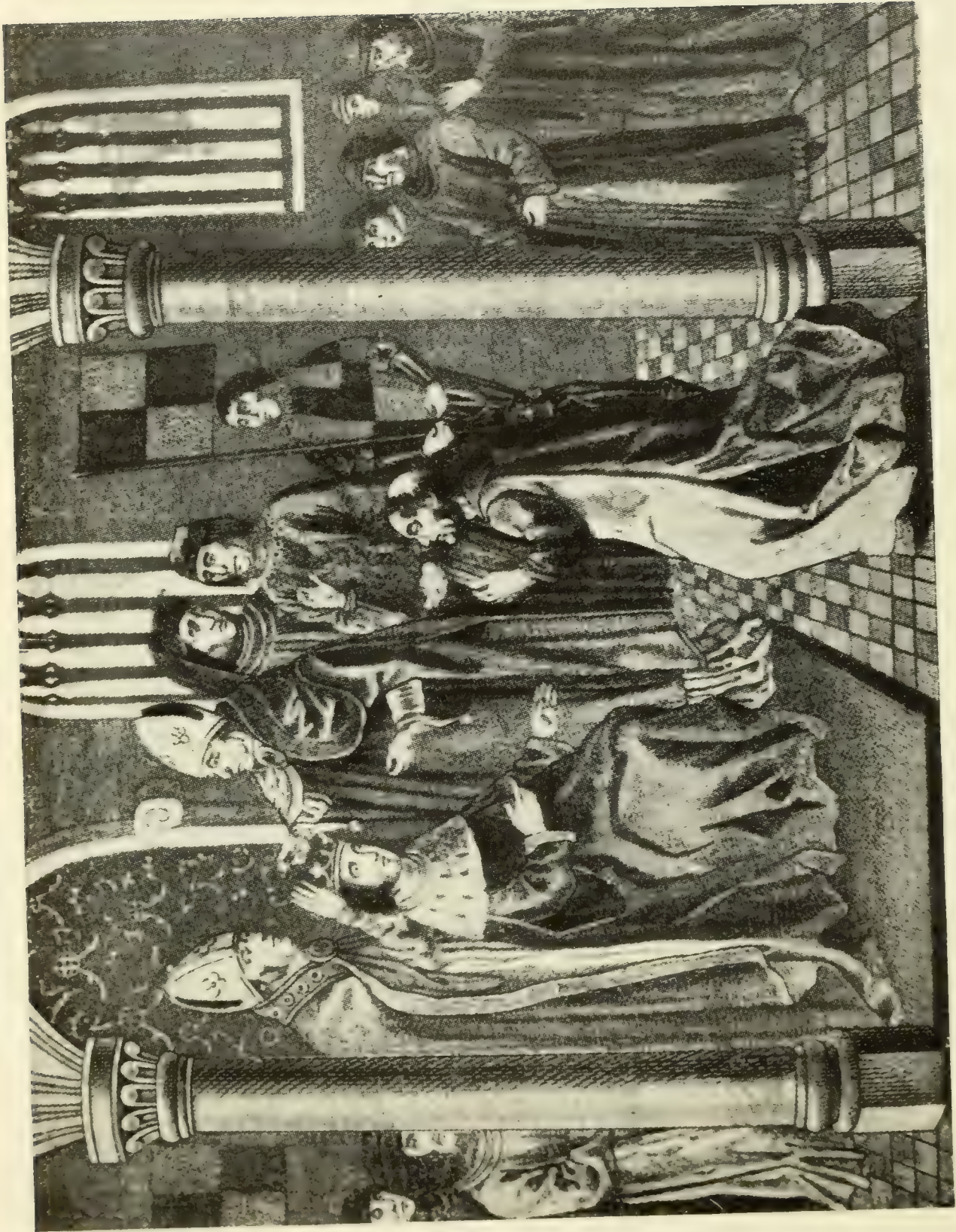
CORONATION OF A KING  
Probably Richard II.  
A.D. 1377  
From an MS. of the XV century





CORONATION OF A KING AND QUEEN CONSORT  
From an MS. of the XIV century





CORONATION OF HENRY IV.  
A.D. 1399

In Westminster Abbey, by Archbishop Arundel of Canterbury, assisted  
by Archbishop Scrope of York  
From an MS. of the XV century





CORONATION OF HENRY VI.  
A.D. 1422





CORONATION OF HENRY VII.

A.D. 1485

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CORONATION OF EDWARD VI.

A.D. 1547

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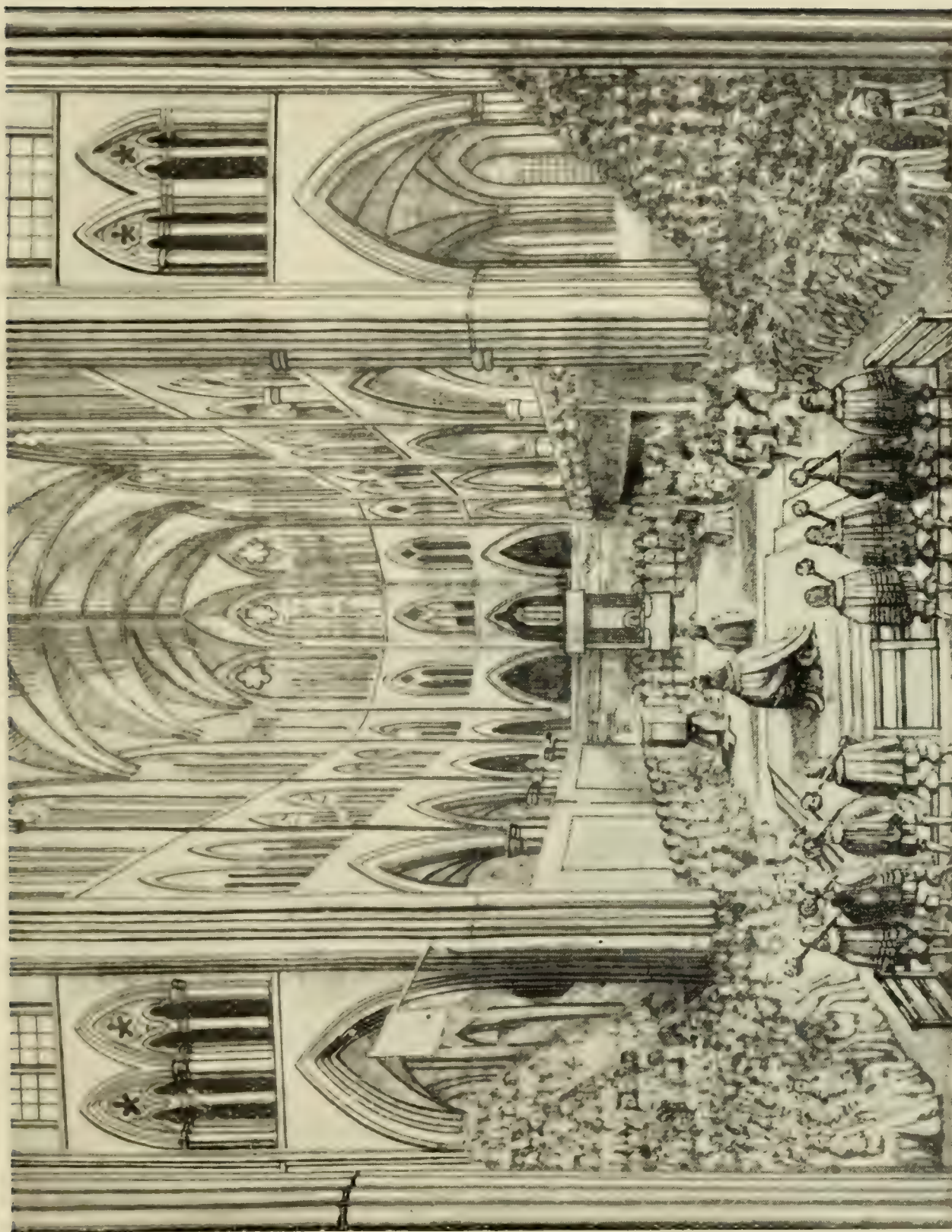




CORONATION OF QUEEN ELIZABETH  
A.D. 1558

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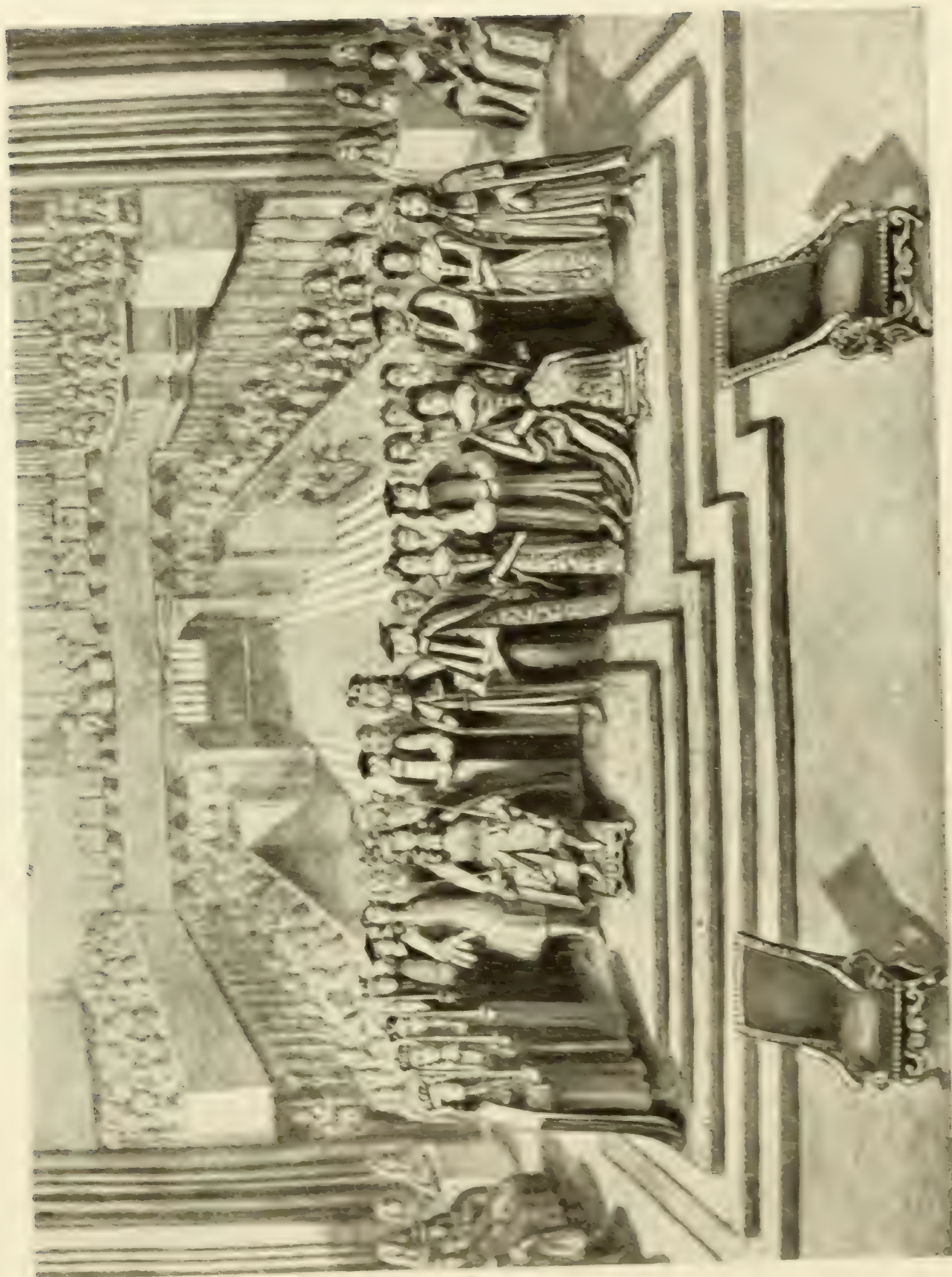




CORONATION OF CHARLES II.

A.D. 1660





CORONATION OF JAMES II,  
A.D. 1685





CORONATION OF GEORGE I.

A.D. 1714

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CORONATION OF GEORGE III.  
A.D. 1761



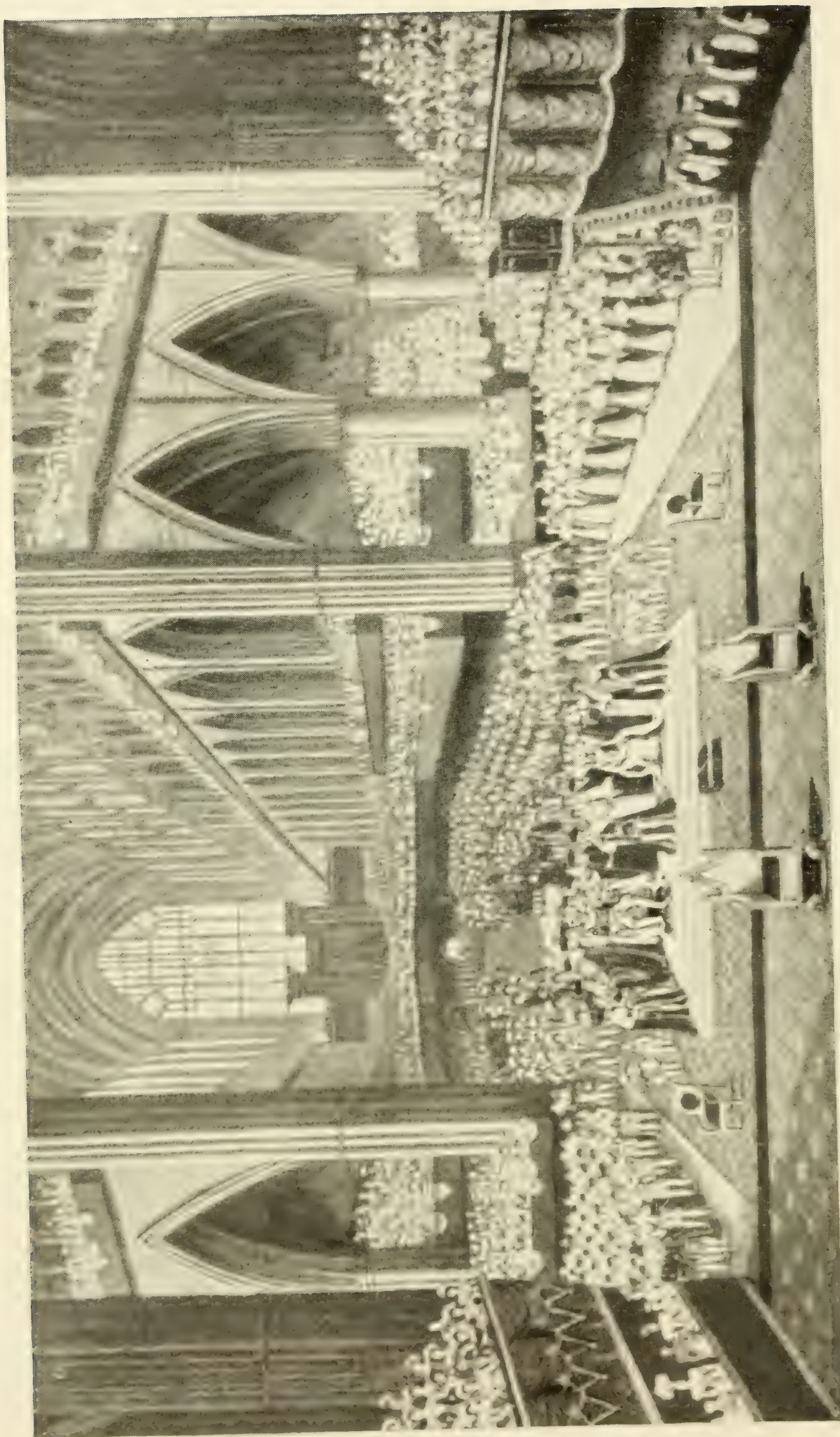


CORONATION OF GEORGE IV.

A.D. 1821

3-22-21





CORONATION OF WILLIAM IV. AND QUEEN ADELAIDE  
A.D. 1831





CORONATION OF QUEEN VICTORIA





CORONATION  
THE ARCHBISHOP OF CANTERBURY CROWNING KING





EDWARD VII.  
D VII. IN WESTMINSTER ABBEY, AUGUST 9, 1902







SOME WEARERS  
OF  
THE BRITISH CROWN





ALFRED—"THE GREAT"  
King of the West Saxons, 871-901





K. EDWARD the CONFESSOR.

EDWARD THE CONFESSOR

The last Anglo-Saxon King of the old line. Reigned 1042-1066





WILLIAM THE FIRST  
Born 1027. Reigned 1066-1087





HENRY THE FIRST  
Born 1068. Reigned 1100-1135





STEPHEN  
Born 1105. Reigned 1135-1154





HENRY THE SECOND  
Born 1133. Reigned 1154-1189





RICHARD THE FIRST  
Born 1157. Reigned 1189-1199





JOHN

Born 1167. Reigned 1199-1216





EDWARD THE FIRST  
 Born 1239. Reigned 1272-1307





EDWARD THE SECOND  
Born 1284. ( Reigned 1307-1327





EDWARD THE THIRD  
Born 1312. Reigned 1327-1377





EDWARD THE FOURTH  
Born 1442. Reigned 1461-1483





HENRY THE EIGHTH  
Born 1491. Reigned 1509-1547





EDWARD THE SIXTH  
Born 1537. Reigned 1547-1553





QUEEN ELIZABETH  
Born 1533. Reigned 1558-1603





JAMES THE FIRST OF ENGLAND AND SIXTH OF SCOTLAND

Born 1566. Proclaimed King of Scotland in 1567, and Reigned over  
England and Scotland from 1603-1625





CHARLES THE FIRST  
Born 1600. Reigned 1625-1649





CHARLES THE SECOND  
Born 1630. Reigned 1660-1685





WILLIAM THE THIRD  
Born 1650. Reigned 1688-1702





GEORGE THE FIRST  
Born 1660. Reigned 1714-1727





GEORGE THE SECOND  
Born 1683. Reigned 1727-1760





GEORGE THE THIRD  
Born 1738. Reigned 1760-1820





GEORGE THE FOURTH  
Born 1762. Reigned 1820-1830





“VICTORIA THE GOOD”

Queen of Great Britain and Ireland, and First Empress of India.  
Born 1819. Reigned 1837-1901.



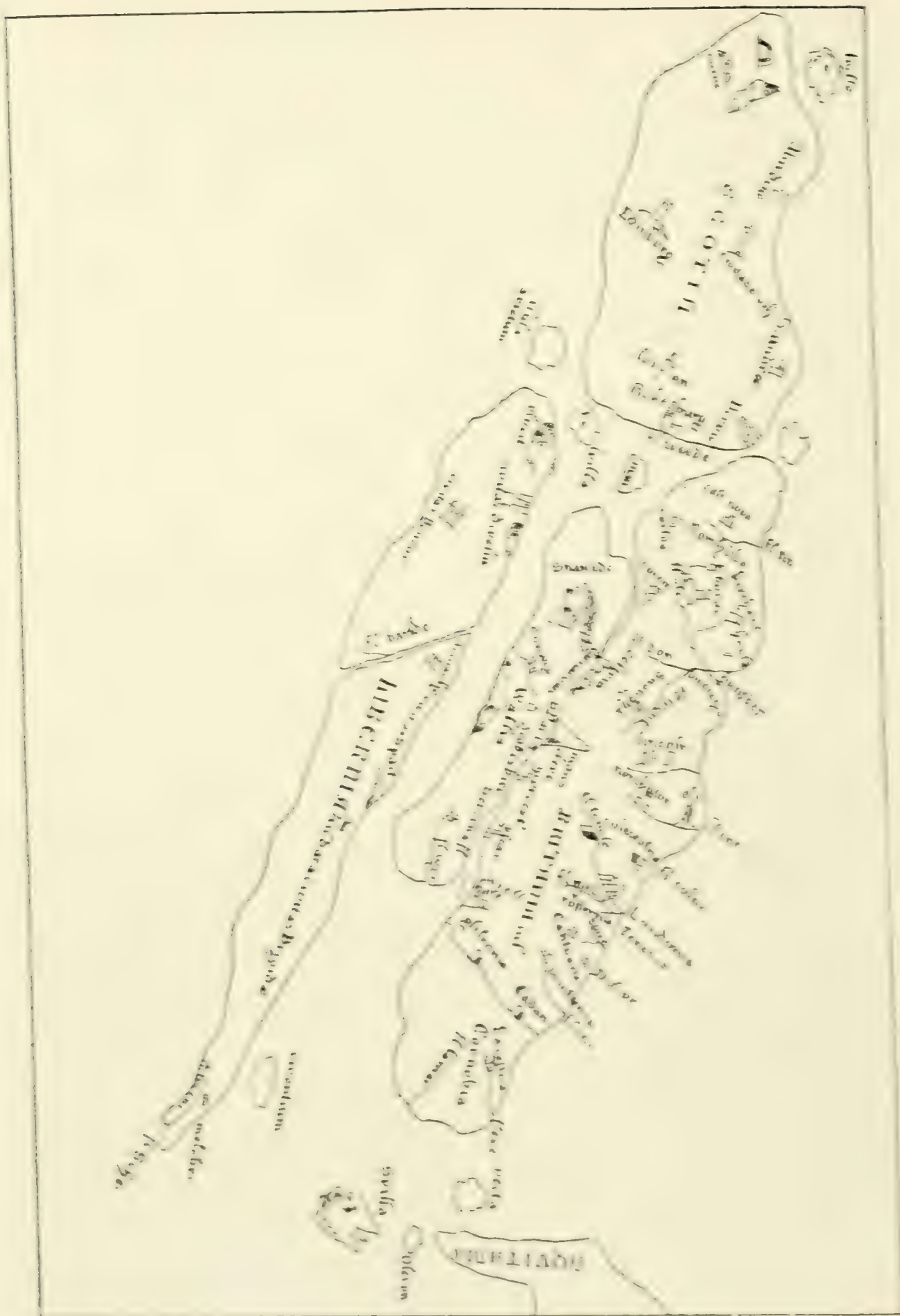


EDWARD THE SEVENTH  
Born 1841. Reigned 1901-1910



SOME BUILDERS  
OF THE  
BRITISH EMPIRE





MAP OF BRITISH ISLES.  
From a drawing of the XII. Century.





SIR MARTIN FROBISHER

1535-1594

Navigator and discoverer of Frobisher Bay. Reached Labrador in 1576, and in 1585 commanded a vessel in Drake's expedition to the West Indies. Fought with distinction in the combat with the Spanish Armada.



## SIR WALTER RALEIGH

1552-1618

One of the most interesting and romantic figures in English history was born at Hayes Barton in Devon, in 1552. Court favourite, scholar, historian, and world adventurer, he was by turns the darling and the butt of fortune. On leaving Oriel College, Oxford, he volunteered, while but a youth, for the Huguenot cause in France, and fought at Jarnac and Montcontour.

He accompanied his half-brother, Sir Humphrey Gilbert, on an ill-fated voyage to the Indies, and, returning in 1580, went to Ireland at the head of a little company of a hundred foot to act against the rebels and quickly attracted attention by his courage and resource.

Going to the court of Elizabeth as a protégé of Leicester, Raleigh soon became prime favourite with the Queen who loaded him with gifts and offices. He used his wealth to further the cause of exploration, and fitted out three successive expeditions to America, commenced the colonisation of Virginia, and introduced from thence tobacco and potatoes into England.

In 1592 he set sail with five ships for Guiana and explored the coast of Trinidad and the Orinocco River, and in 1596 published his "Discovery of Guiana."

He was present at the taking of Cadiz, and with the Earl of Essex in a great expedition, which started from Plymouth for the Spanish Main. Later he captured Fayal, one of the Azores Islands.

Raleigh became governor of Jersey for three years, but on the death of Elizabeth, being suspected of wishing to place Arabella Stuart on the throne, he was imprisoned in the Tower for life. After thirteen years, during which he wrote the first volume of his "History of the World," he was released in order that he might look for a gold-mine in Guiana. In this last melancholy voyage he lost his son in a fight with the natives, and, buffeted by storms and weakened by sickness, he returned to England, only to receive his death at the hands of his ungrateful country.

The value of Raleigh's work in the making of the Empire was far greater than any permanent or material addition he made to its borders, and consisted in the inspiration and impetus which he gave to his own and each succeeding generation of Englishmen for the pioneer work of colonisation.





SIR WALTER RALEIGH





SIR FRANCIS DRAKE

1540-1596

Famous for his exploits on the Spanish Main. First Englishman to circumnavigate the globe. Commanded under Howard in the combat with the Spanish Armada. From his boyhood till the day when his body was committed near Porto Bello, to that far western sea he loved so well, Drake's life was a continuous succession of extraordinary adventures, hair-breadth escapes and daring achievements, and he stands out as the typical figure among the brave old Elizabethan sea-dogs who first pointed out the pathway of colonial expansion, since followed by so many Britons, beyond the seas.





ADMIRAL ROBERT BLAKE  
1598-1657

Commander of the Fleet in 1649, and Warden of the Cinque Ports in 1651.  
In 1653 successfully contested the Dutch mastery of the seas against  
Van Tromp, De Ruyter and De Witt.





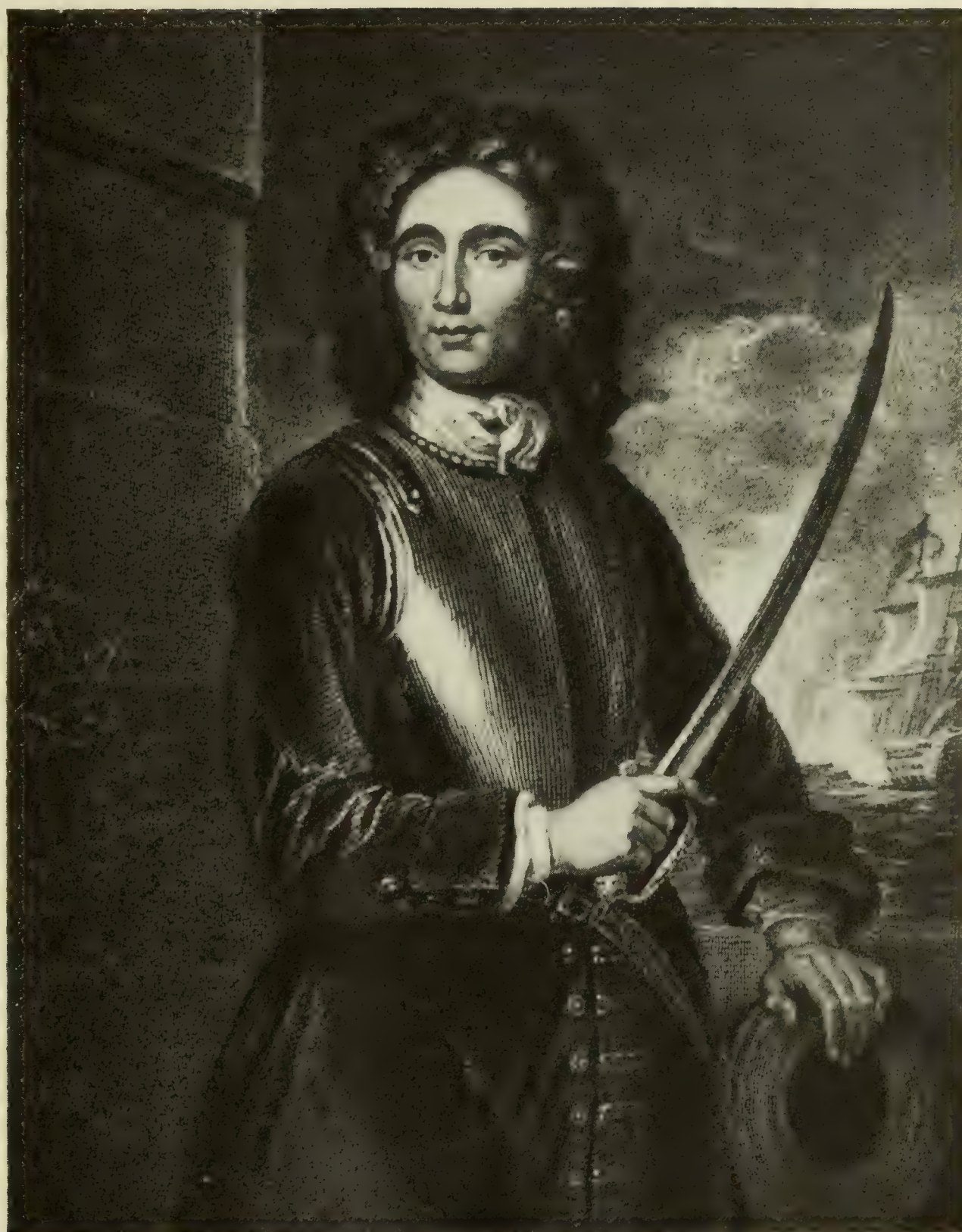
JOHN CHURCHILL, DUKE OF MARLBOROUGH

1650–1722

General and Statesman

Captain-General of the British Forces in 1702. His victories at Donauwörth, Blenheim, Ramillies and Malplaquet paved the way for British expansion in the eighteenth century.





ADMIRAL JOHN BENBOW  
1653-1702

A dashing and successful commander in the wars against the French and in the West Indies, 1689-1702.





GEORGE, LORD ANSON

1672-1762

A famous British Admiral who circumnavigated the globe, and by his victory over the French at Cape Finisterre, helped to gain for England the Empire of the Sea.





LORD AMHERST  
1717-1797

Born at Riverhead, Kent, 1717, and entered the Army at the age of fourteen. He was entrusted by Pitt with the expedition to Canada in 1758, and it was largely owing to his prudent conduct of the war, aided by the genius and enthusiasm of Wolfe, that Old Canada became throughout a British Colony.



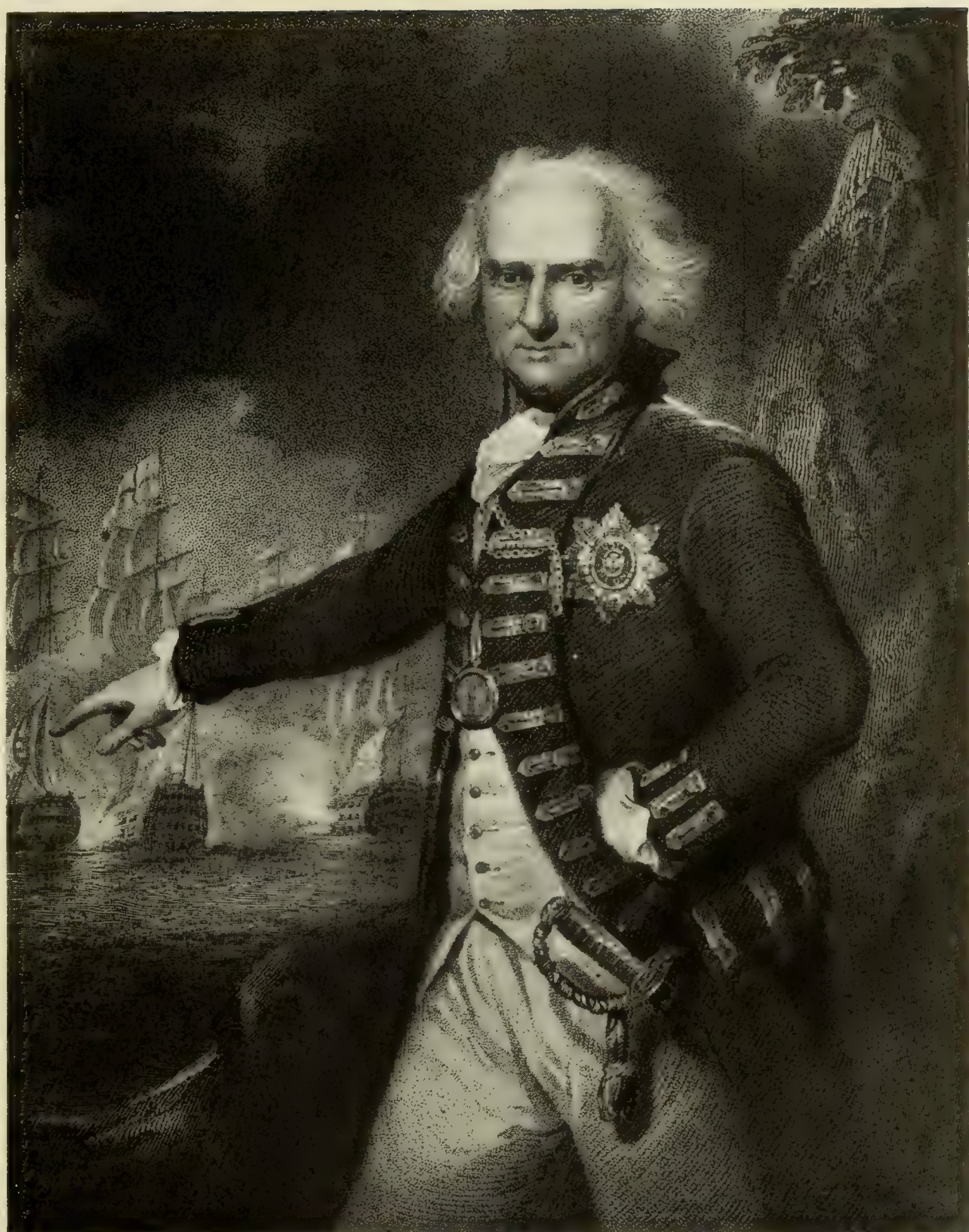


ADMIRAL LORD RODNEY, K.B.  
1718-1792

Vice-Admiral of England

In 1762 captured Martinique, St. Lucia and Grenada. Served in the the Seven Years' War, and defeated the Spanish Fleet off Cape St. Vincent in 1780. He also gained a victory over the French in 1782.





VISCOUNT HOOD  
1724-1816

Commander-in-chief of the Navy in North America, 1767, and in the Mediterranean in 1793. Contributed to the growth of colonial empire by his victories off Dominica and St. Kitts.



## LORD CLIVE

1725-1774

Born at Styche, near Market Drayton, 1725, Robert Clive began his Indian career as a writer in the service of "John Company," but on the outbreak of hostilities, took naturally to soldiering and early displayed his extraordinary genius for war by the capture of Arcot (1751), which he held against a vastly superior force.

This was followed by the victories of Arni and Kaveripak and the capture of Kovilam and Chingalpat. After a brief period in England, Clive returned to India to avenge the atrocity of the Black Hole. Calcutta and Chandernagore were soon taken, and at Plassey, one of the most fateful battles in the history of the British Empire, he defeated Surajah Dowlah's large army with a small force of 3,200 men. On returning to England he was honoured with an Irish peerage and a seat in the House of Commons. In 1765, the affairs of the East India Company having fallen into disorder, he returned to Calcutta, and during the twenty-two months of this second Governorship established the Indian Administration on a firm basis. In doing so he roused a storm of opposition from those whom he displaced, and, on his return to his native country, his earlier proceedings in India were severely commented upon in a parliamentary enquiry.

In its final resolution, Parliament, while admitting his great and meritorious services, passed at the same time some censure upon Clive's conduct. This so preyed upon him, that ill in mind and body, he died by his own hand on 22nd November, 1774.

Clive's splendid victories at a critical moment in the History of India won for the British the virtual sovereignty of Bengal, Bahar and Orissa, established their military prestige throughout the whole country, and paved the way for an Imperial Suzerainty.





ROBERT, LORD CLIVE



## WARREN HASTINGS

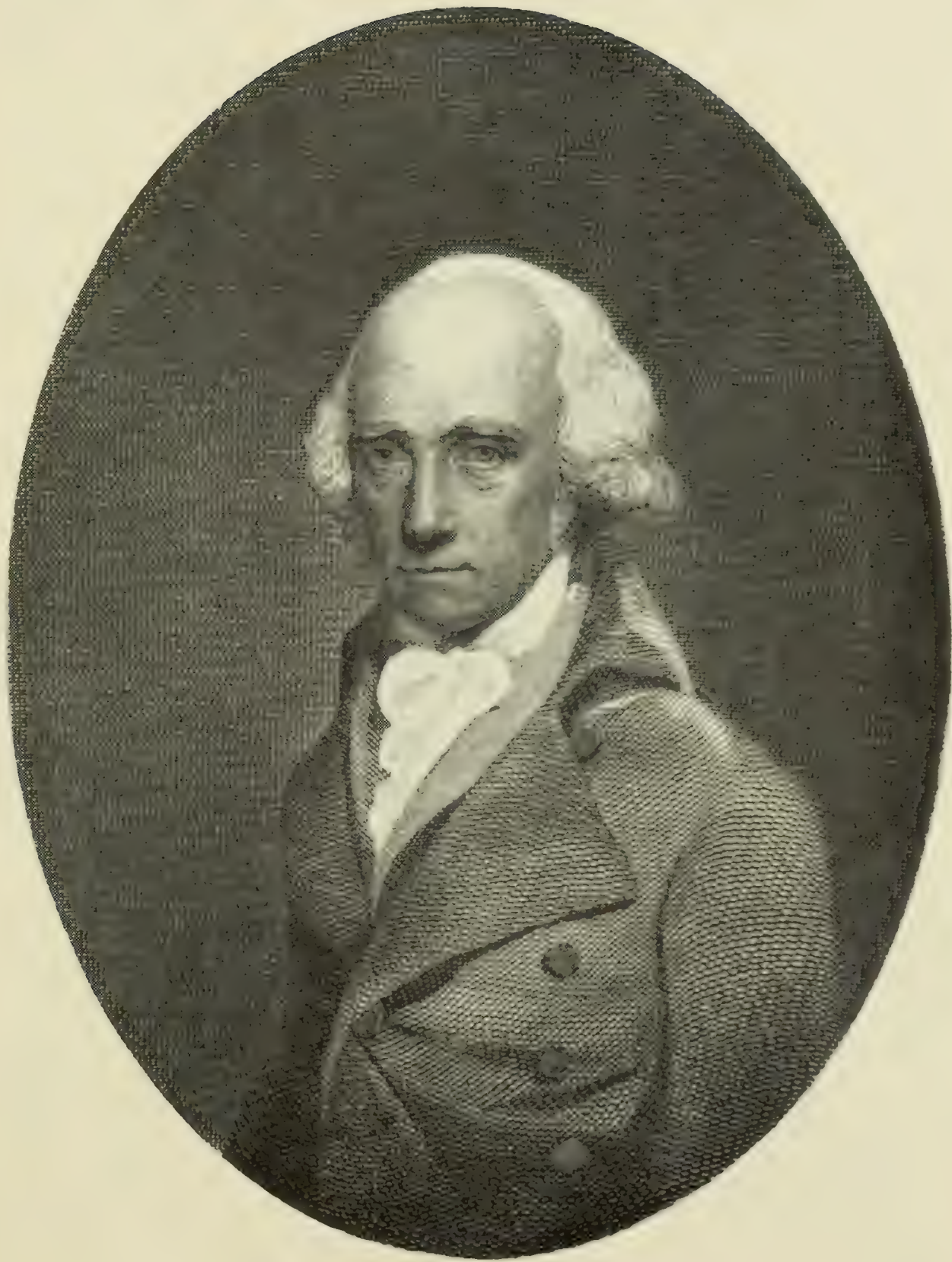
1732-1818

This great Indian Administrator was born at Churchill and educated at Westminster, he went to Calcutta in 1750 in the service of the East India Company, and was appointed British Resident at Murshidabad in 1758. In 1769 he became second in council at Madras, and three years later Governor of Bengal and President of the Council.

As Governor-General, to which position he was appointed in 1773, Hastings made an appraisement of the landed estates, revised the assessment, improved the administration of justice, organised the opium revenue, waged vigorous war against the Mahrattas and made the Company's power paramount in many parts of India. After violent dissensions with the members of the council and a duel, in which he wounded Phillip Francis, one of his opponents, he resigned office and returned to England. Having been impeached at the bar of the House of Lords, he was involved in a trial which lasted seven years, completely stripped him of his fortune and would have reduced him to poverty had not the East India Company for which he had, during troublous times, accomplished so much, provided for his declining years.

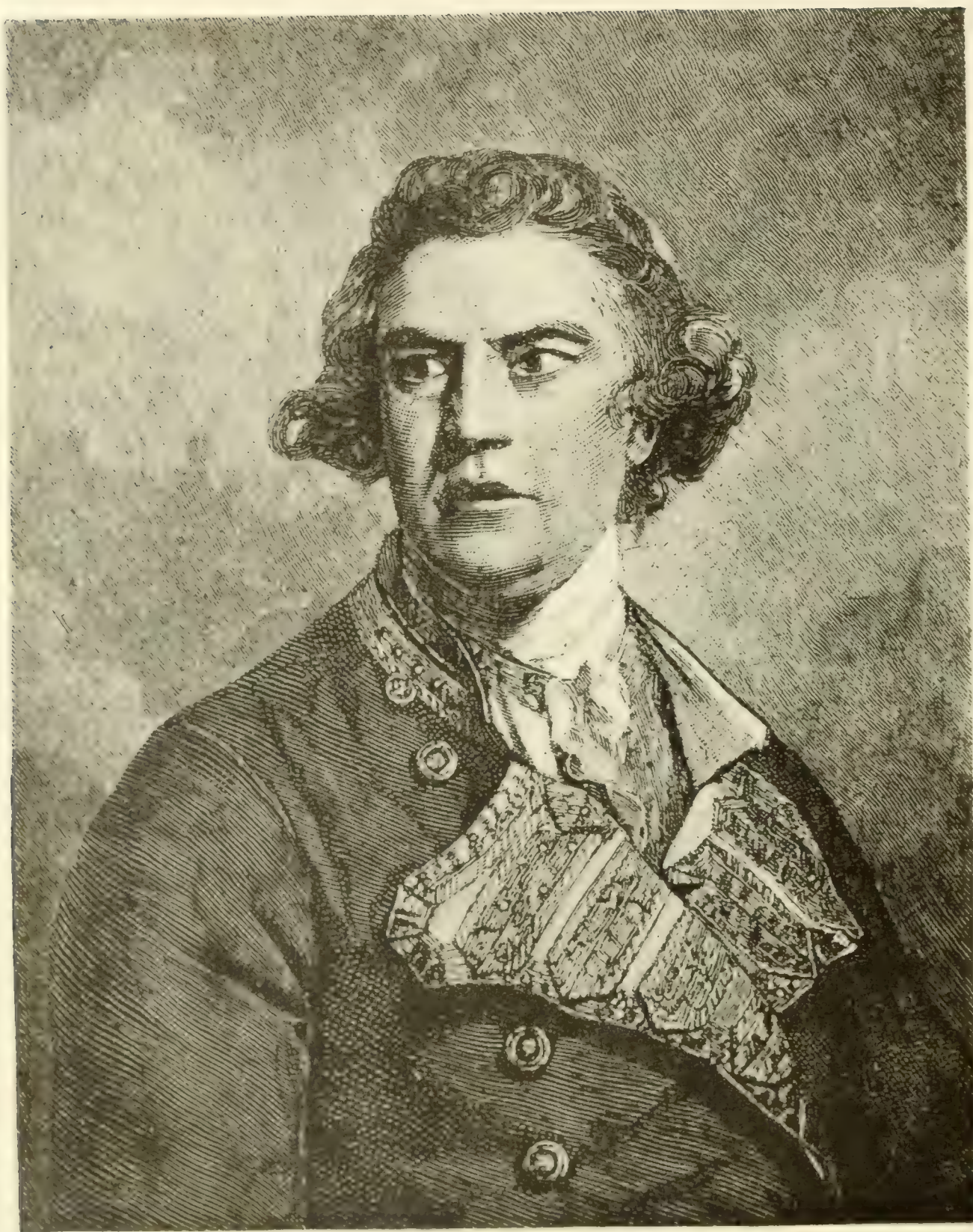
By his generalship and diplomacy Warren Hastings established upon a firm basis the British occupation of India.





WARREN HASTINGS





VISCOUNT KEPPEL

1725-1786

Admiral of the Blue and Commander-in-Chief of the British Fleet, 1778. Took part in the battle of Quiberon Bay in 1759, and in the capture of Bellisle in 1761, and commanded the British forces at the conquest of Havana in 1762.



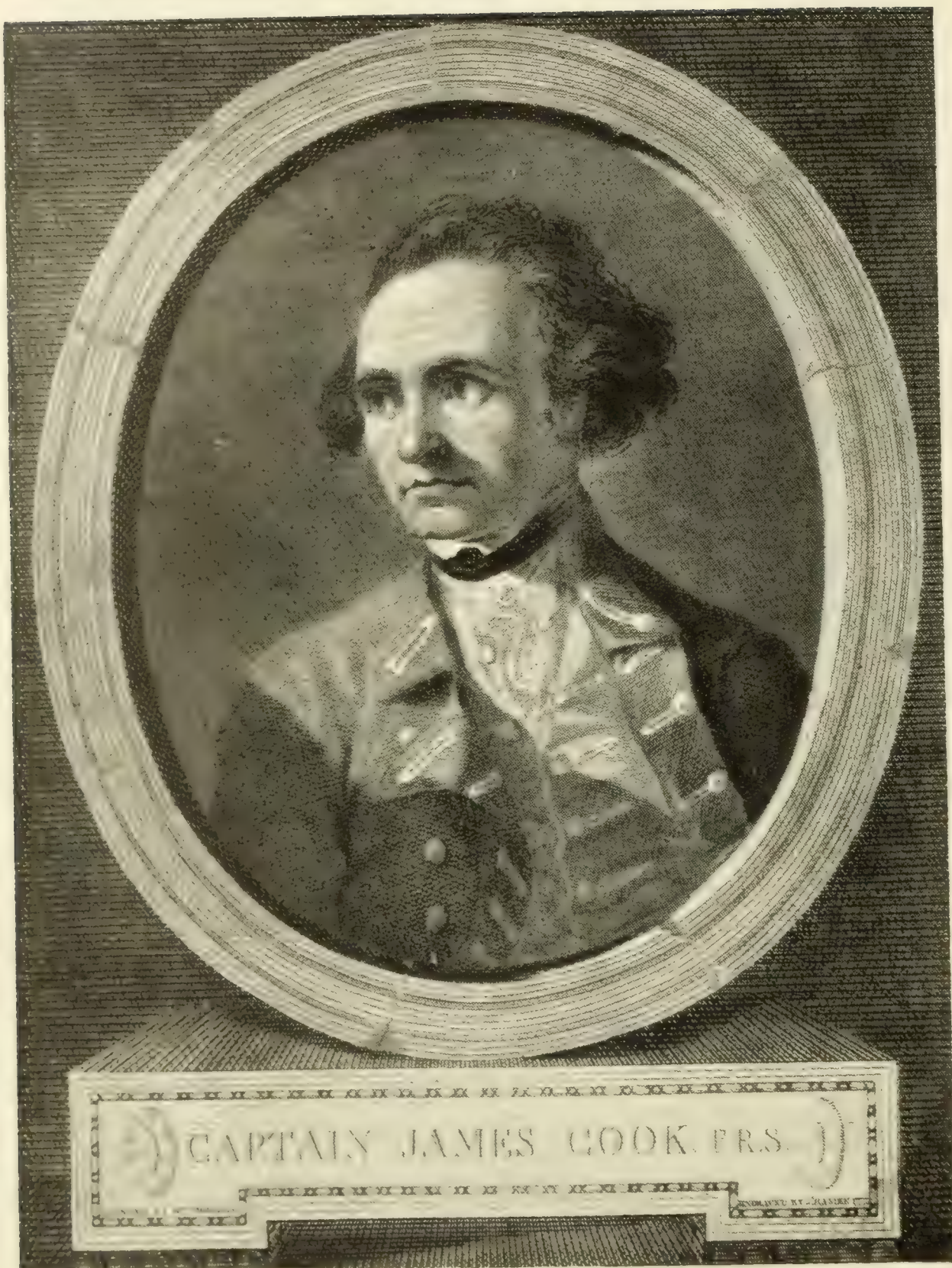


GENERAL WOLFE

1727-1759

James Wolfe received an ensign's commission in 1742 and fought at Dettingen, Falkirk and Culloden, and assisted in the capture of Louisburg. Pitt entrusted to him the Canadian expedition of 1759. The attack on Montcalm's strong position at Quebec was extremely difficult, but at last, scaling the cliff at a point insufficiently guarded, Wolfe led his men on to the Plains of Abraham and took the city. Wolfe's victory, in which both he and his heroic antagonist Montcalm perished, decided the political fate of Canada



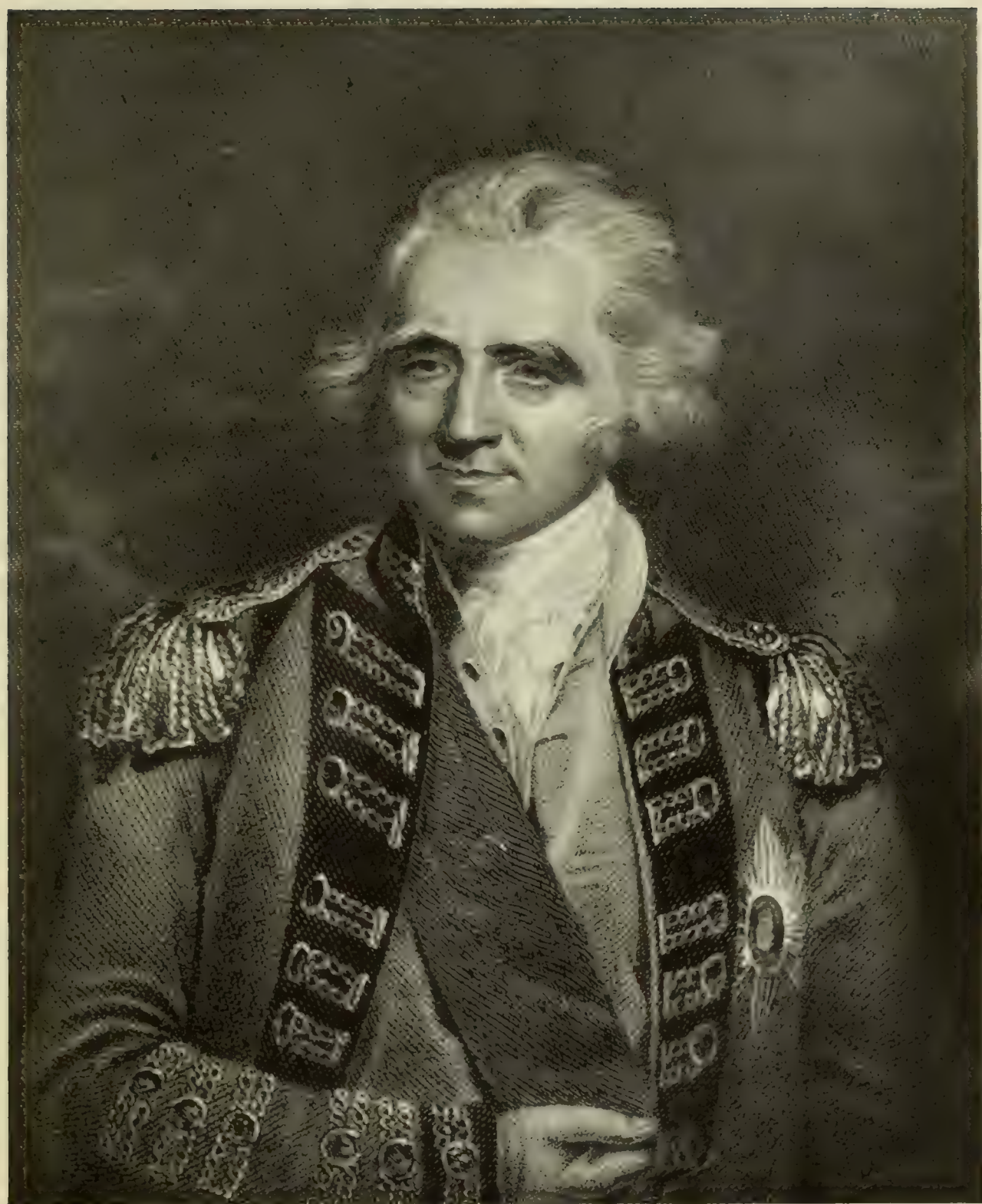


#### CAPTAIN COOK

1728-1779

After distinguishing himself as an intrepid sailor and skilful navigator in the coasting and Baltic trade, James Cook entered the Navy and was engaged for ten years surveying about the shores of Newfoundland and the St. Lawrence River. He circumnavigated and charted New Zealand, and on April 28, 1770, landed at Botany Bay, gave to the country the name of "New South Wales," and took possession of it for Britain. Besides securing that immense tract of land for his native country, Captain Cook, in this and subsequent voyages, added greatly to the knowledge of the Pacific and Southern Ocean.

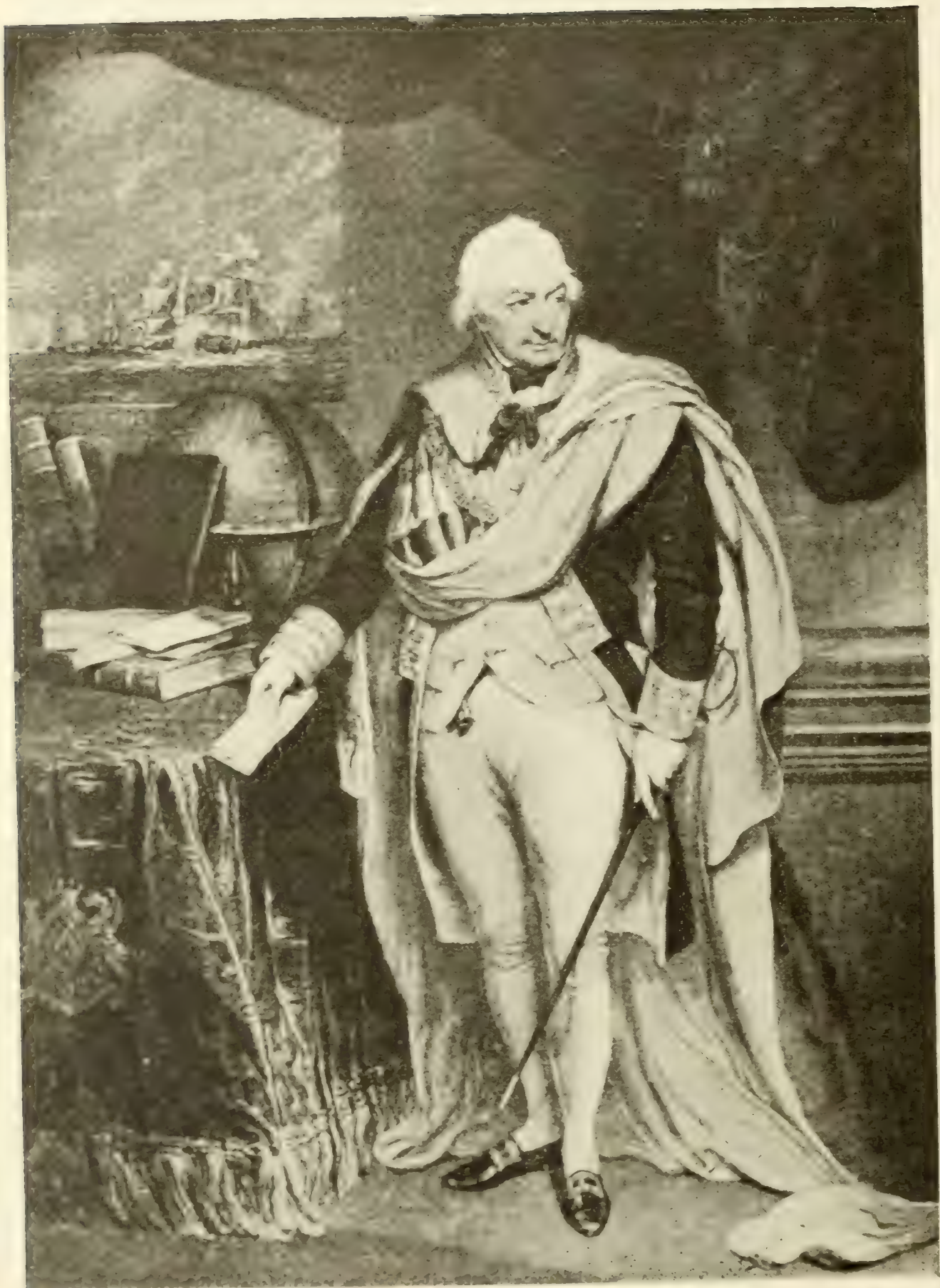




SIR RALPH ABERCROMBY  
1734-1801

General and Commander-in-Chief of the British Forces in the West Indies,  
1795-1797. He took Grenada, Demarara and Trinidad.





ADMIRAL SIR JOHN JERVIS, EARL ST. VINCENT, K.B.  
1735-1823

Won distinction as a young lieutenant in the Quebec Expedition in 1759. Commanded the naval part of the successful expedition, in 1793, against the West India Islands. First Lord of the Admiralty, 1801.





THE MARQUIS WELLESLEY  
1735-1781

Richard Cowley Wellesley, eldest son of the first Earl of Mornington, was appointed Governor-General of India in 1797. His victories over the French and the followers of Tippoo Sahib, and later, assisted by his brother (afterwards Duke of Wellington) over the warlike Mahrattas, followed up by a far-sighted and vigorous administration, made Britain the paramount power on the great Asiatic Peninsular



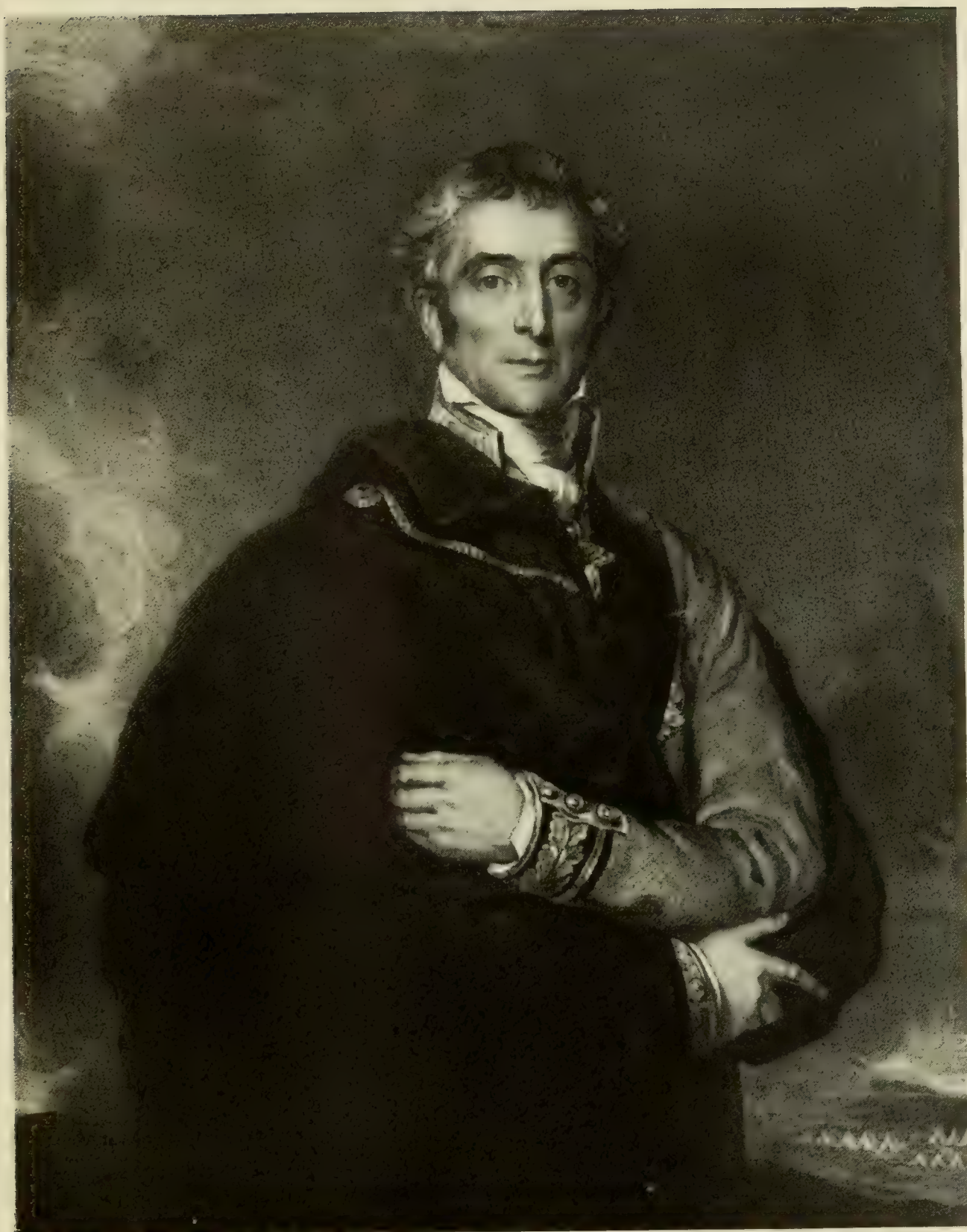


HORATIO, VISCOUNT NELSON  
1758-1805

Served under Hood, Hotham and Jervis. After destroying the French Fleet in the Bay of Abukir, he was made Vice-Admiral. He defeated the French at the battle of Copenhagen in 1801, and, as Admiral, attacked the combined Franco-Spanish Fleets off Cape Trafalgar, October 21, 1805, and vanquished them, thereby destroying Napoleon's plans for the invasion of England.

"Brief, brave and glorious was his young career,  
His mourners were two hosts, his friends and foes."





ARTHUR WELLESLEY—DUKE OF WELLINGTON  
1769-1852

Soldier and Statesman—Field-Marshal and Commander-in-Chief of the British Forces in the Peninsular, 1808-9; and at Waterloo, where he defeated the French Army under Napoleon, on June 18, 1815. Prime Minister of England from 1828-1830.





SIR CHARLES JAMES NAPIER  
1782-1853

A descendant of Napier of Merchiston the famous Mathematician. Napier, after a distinguished record of service was ordered to India in 1841, to command in the war with Sind, and succeeded in breaking the power of the Ameers at the battle of Meanee. After the further victory of Hyderabad, he was made Governor of the province. In 1847 he was appointed Commander-in-Chief of the forces in India, and accomplished useful service in the Sikh war.



1



2

3

# HEROES OF THE INDIAN MUTINY

- 1 Colin Campbell, Lord Clyde, 1792-1863, Rescuer of Havelock and Outram at Lucknow, and Reliever of Cawnpore.
- 2 Sir James Outram, 1803-1863—the " Bayard of India," Defender of Lucknow.
- 3 Sir Henry Havelock, 1795-1857, Reliever of Lucknow, 1857.

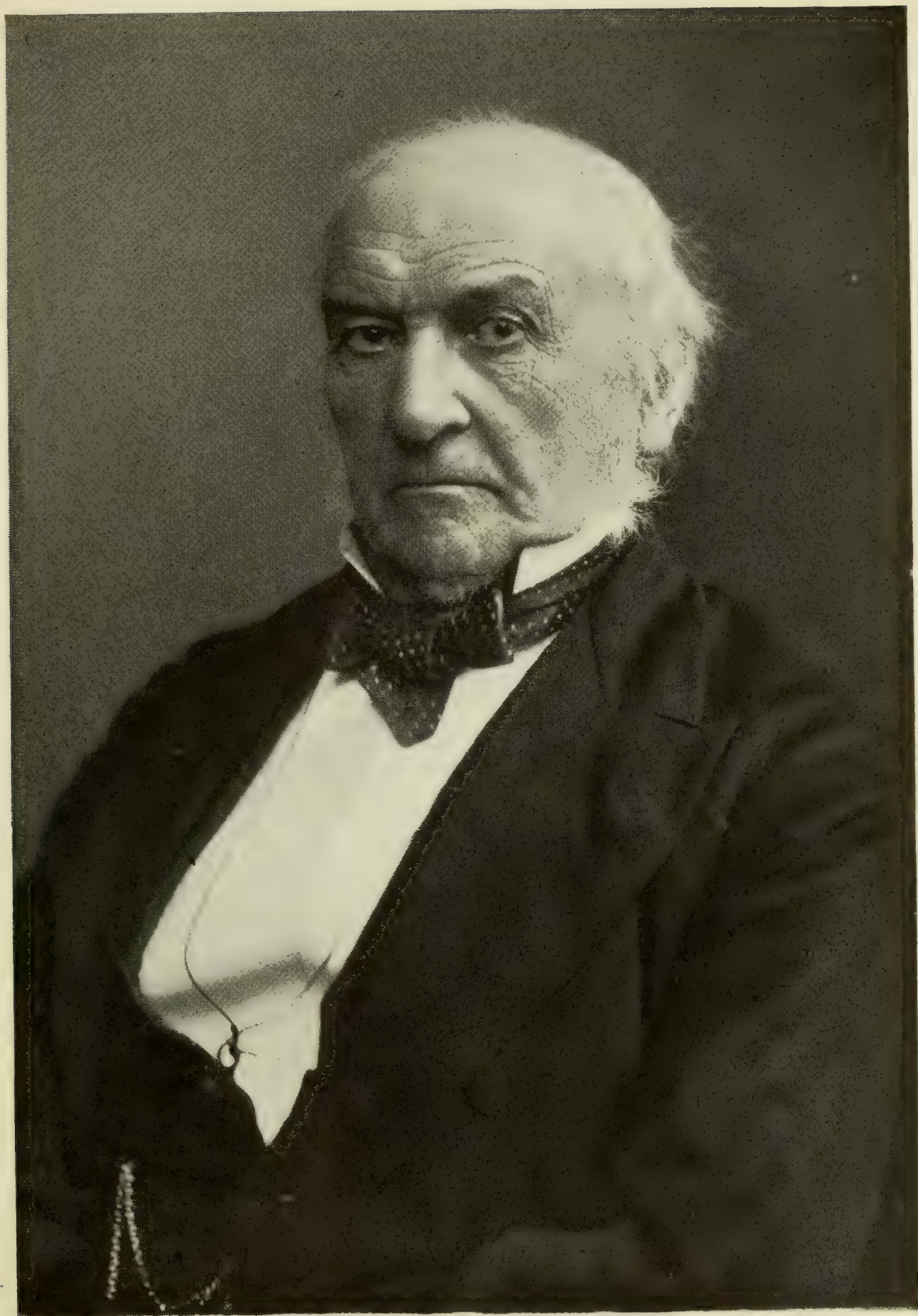




BENJAMIN DISRAELI, EARL OF BEACONSFIELD  
1804-1881

Prime Minister in 1868, and from 1874-1880, his bold stroke of policy in making Britain half owner in 1875 of Suez Canal, strengthened English influence in Egypt. In 1876 he conferred upon the Queen the new title of Empress of India, and obtained at the Berlin Congress (1878) peace with honour and the cession of the island of Cyprus.





THE RIGHT HONOURABLE WILLIAM EWART GLADSTONE  
1809-1898

Prime Minister, 1868-1874; 1880-1885;  
Feb. to July, 1886; and from 1892-1894

The silver-tongued orator and unequalled parliamentary debater, who for sixty-two years was a member of the House of Commons and Prime Minister in more than four administrations, was famous rather for his domestic reforms than for any additions to British territory effected by his policy. Nevertheless, his generous and passionate championship of oppressed nationalities won for England a place in the esteem of subject races which has been favourable to British expansion.





SIR BARTLE FRERE

1815-1884

Was born at Chydach in Brecknock and studied at Haileybury. As Chief-Commissioner of Sind he kept order amid the turmoil of the Indian Mutiny. From 1862 to 1867, Sir Bartle Frere was Governor of Bombay, and in 1877 he signed a treaty with the Sultan of Zanzibar, abolishing the slave trade. From that year till 1880 he was Governor of Cape Colony and High Commissioner for South Africa. He was one of the first to set up the ideal of a confederation of South African Colonies





MARQUIS OF DALHOUSIE

1812-1860

One of the greatest of Indian Pro-Consuls, became Governor-General in 1847. His administration was not less successful in the acquisition of territory than in developing Indian resources and in improving the administration. Peque and the Punjab were conquered; Nagpur, Oudh, Sattara, Jhansi and Berrar annexed, thousands of miles of railways and telegraph wires laid, the Ganges Canal and important irrigation works all over India opened during the nine short years of his rule in India.





JOSEPH CHAMBERLAIN

Born in 1836, and having acquired a great reputation in municipal and parliamentary life, Mr. Chamberlain became Colonial Secretary in 1895, and by his broad conceptions of imperial policy and keen sympathy with the problems of the great oversea dominions awakened a new enthusiasm for the expansion of England. He resigned office after the Boer War in order to advocate preferential tariffs for the colonies.





CECIL RHODES

1853-1902

Having gone to Natal for his health, Cecil Rhodes made a fortune in the Kimberley diamond diggings and became a leading man in Cape Colony ; he secured a charter for the British South Africa Company, of which he was managing director, and whose territory is now Rhodesia. In 1890 he was Prime Minister of Cape Colony, and initiated and inspired to a great extent the policy of a great Federal South African Dominion under the British flag.





SIR HENRY M. STANLEY

1841-1904

This intrepid explorer and brilliant descriptive writer was also an empire builder, and probably accomplished more than any other man of his generation to open up the vast mid-regions of Africa. Stanley made urgent representations to the British Government to occupy the waste lands of the East, West and Central districts, but the opportunity was disregarded. Nevertheless, his work of exploration has been of immense service in fastening the interest and attention of his fellow countrymen upon the Dark Continent where he accomplished so much.





EARL ROBERTS OF KANDAHAR, PRETORIA AND WATERFORD  
P.C., K.P.

Born 1832. After a long and splendid record of achievements in India, including his famous march through Afghanistan and Relief of Kandahar, Lord Roberts was sent out to assume chief command of the British forces in the Boer War. He relieved beleaguered Kimberley and, advancing to Pretoria, secured the ultimate triumph of British arms.

Field-Marshal, Commander-in-Chief of the British Army, 1901-1904





VISCOUNT WOLSELEY, K. P., G. C. B.

Born 1833. By his successful campaigns in Canada (Red River rebellion 1870), Ashanti, Natal, and especially Soudan 1884-5, has vastly extended the sphere of British influence. Field-Marshal, Commander-in-Chief of the British Forces in Egypt, 1882, and other Campaigns. Commander-in-Chief of the British Army, 1895-1900.





#### VISCOUNT KITCHENER OF KHARTOUM

Born 1850, and, entering the Engineers in 1871, served in Palestine, Cyprus, and in the first Sudan campaign. By his victory over the Khalifa at Omdurman, September 21, 1898, he won back the Sudan for Egypt. In 1900-2 he carried out successfully the final operations of the Boer War, and concluded an honourable peace. Commander-in-Chief of the Indian Forces, 1902-1909. Appointed High Commissioner of the Mediterranean, 1909.

Field-Marshal and Member of the Imperial Committee of Defence.





SIR A. K. WILSON, G.C.B.

Admiral of the Fleet, 1907  
First Naval Lord of the Admiralty





ADMIRAL LORD FISHER OF KILVERSTONE, G.C.B.  
Admiral of the Fleet, First Sea Lord of the Admiralty until January 1910  
when he retired, but continues to serve as Member of Committee of  
Imperial Defence.



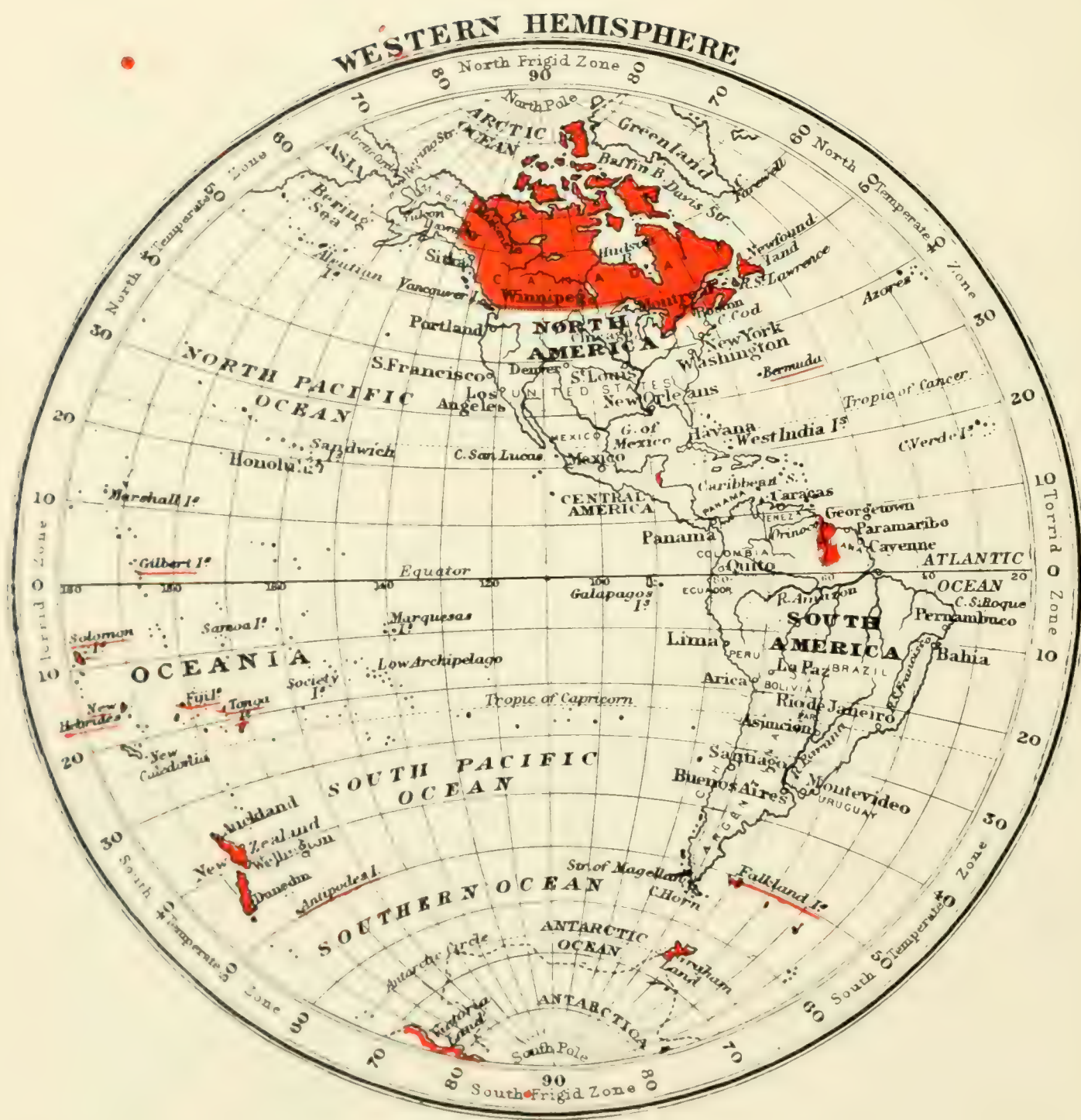


ADMIRAL LORD CHARLES BERESFORD, K.C.B.  
Commander-in-Chief Channel Fleet, 1906-1909



THE BRITISH EMPIRE  
AND  
SOME OF ITS RULERS

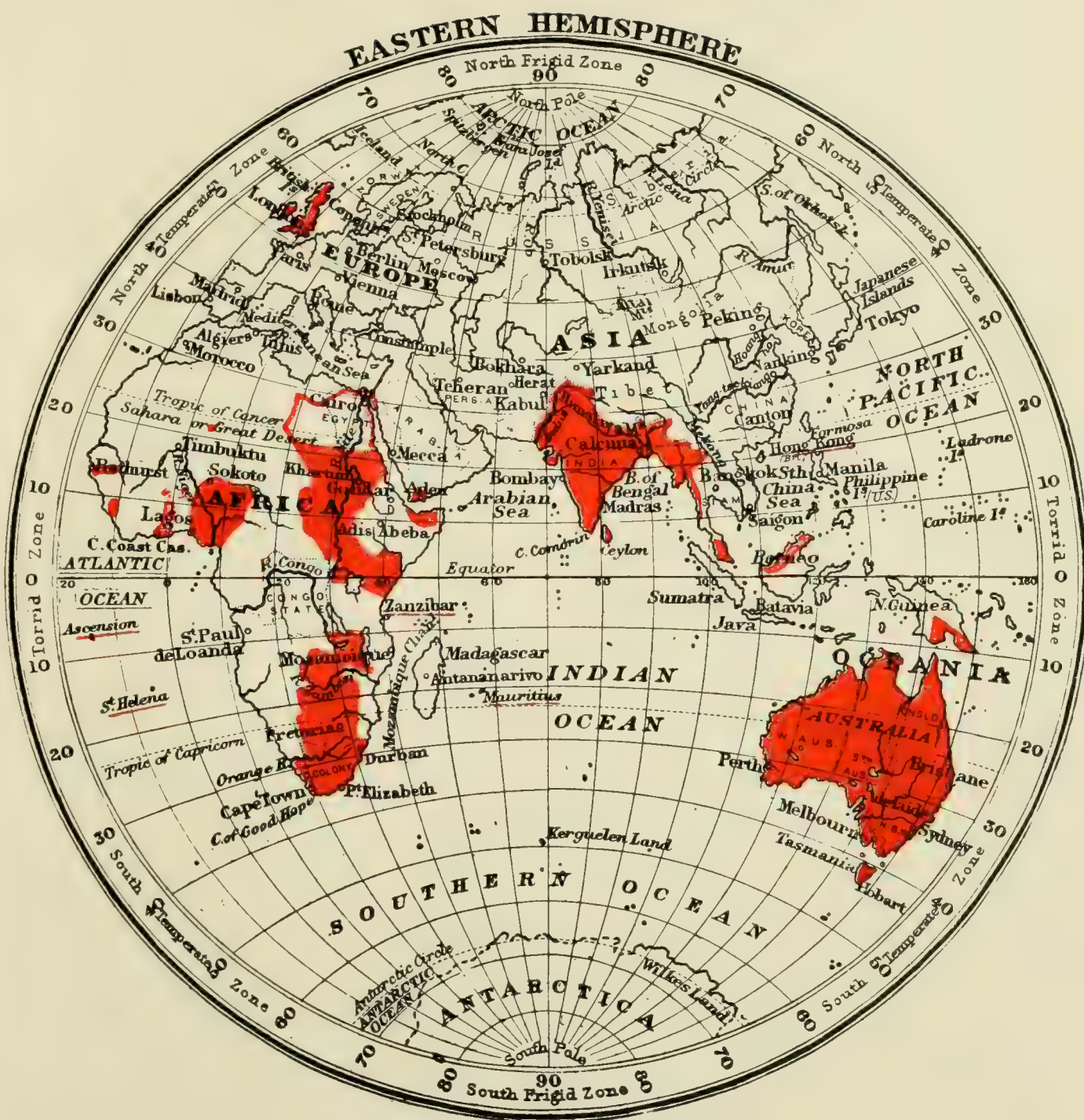




MAP OF THE WESTERN HEMISPHERE  
Showing British Possessions



N WHICH THE  
SETS



THE WORLD  
possessions (in red)





" UNDER ONE FLAG "

" United we stand, divided we fall "

Reproduced by special permission of the Proprietors of "PUNCH," from issue  
dated October 18, 1899



“Civis Brittanicus sum.”

*Lord Palmerston*

## THE BRITISH EMPIRE

THE coronation of George V. as King of Great Britain and Ireland and of the British Dominions beyond the Seas, Emperor of India, is an event of more than domestic significance and one which concerns every “citizen of the world,” for the Empire over which King George has been called to rule extends over one-fifth of the whole land surface of the earth and includes 11,400,000 square miles of territory, supporting an estimated population of 410,000,000 persons, and touches at many points the interests as well as the frontiers of other nations.

It is not too much to affirm that the continued existence of the British Empire as a great world power constitutes one of the best guarantees for the maintenance of peace and for the progress of civilisation which the present condition of the world can show, and that its downfall would carry with it ruin and confusion to States and Peoples many leagues beyond its own “far flung battle line” and apparently quite outside its sphere of political influence.

A world power

Both in regard to the history of their growth and the political character of their connection with the centre of government, the various sections of the Empire may be divided into two classes, namely, the self-governing and crown colonies on the one hand, and on the other those dependencies, protectorates and native states over which the British Crown exercises a suzerainty and which are administered by governors and officers appointed directly by the King's Government.

In the first of these two classes are the great federated states of Canada, Newfoundland, Australia and New Zealand and the South African Union.



This great Anglo-Saxon league is not held down by force of arms nor welded together against its will by the arts of military strategy ; it is a free sisterhood of states linked in a world-wide citizenship by the ties of kindred, religion, language and literature, and inspired by common ideals of law, of justice and of family life. For this Pan-Britannic world the throne of England is a central and pivotal point—the symbol, not merely of glorious historic traditions, but also of a real and practical union for mutual helpfulness and defence.

Its origin,  
growth

These portions of the Empire are to be regarded largely as a natural result of the overflow of Anglo-Saxon populations into countries previously unoccupied, or but thinly peopled. Pioneer settlers have braved the ice floes of Canada, the dangers of African jungles and of the arid plains and tangled scrub of Australia to plant British homesteads, British institutions and the British flag in those now prosperous but distant regions. Out of deserts they have made fruitful gardens, and the rich and splendid states which have grown up in what were once wildernesses are the legitimate reward of greatly daring enterprise, immense industry and a magnificent faith in the future.

and Defence

Other portions of the colonial empire of Britain have come into it through conquest, by voluntary association, and through the sheer necessity of maintaining order among primitive and lawless peoples upon lands contiguous to British possessions.

The Empire which has thus grown into a corporate unity, in spite of wide differences of race, climate and condition, is defended by a thin red line of gallant soldiers who encircle it with their swords, and by brave ships of battle—not a few—whose keels ride the four seas and protect both the shores of Greater Britain and the waterways of its world-wide commerce.

These two arms of defence are mighty and well equipped, and behind them is the inexhaustible patriotism and loyalty of the millions of people to whom the flag of Britain is the beloved and venerated emblem of justice, of religious tolerance and of equal rule.



## IN EUROPE

### BRITISH ISLES

The British Isles form the centre of administration and finance, and, in a considerable measure, of executive government, for the whole Empire.

The total area is 121,377 square miles, and the population in 1910 amounted to 45,469,564 persons:

The name Great Britain was not officially applied to England, Scotland and Wales until the time of James I. of England and Sixth of Scotland, who was styled at his succession, King of Great Britain.

The political and industrial supremacy of Great Britain is largely due to the geographical position and vast natural resources of these islands. They are situated almost in the centre of the land hemisphere of the Globe and mineral wealth has been found in apparently inexhaustible quantities beneath their soil.

The centre  
of the land  
hemisphere

This unique position and these remarkable natural resources have been exploited with unexampled energy and success by a race whose mixed ancestry is derived from various European sources; Celts, Saxons, Scandinavians and Normans have, in turn, invaded the country; the strongest and most fearless gaining a footing in it have become welded into the race and have contributed to the vigour of the national character, and handed on traditions of adventure and of enterprise to each successive generation. Fortunately for her progress in the arts of peace, Britannia's battles have been fought and her victories won, for the most part, outside her own territories, in foreign lands.

From the prolonged and incessant warfare within the realm itself, which, in the end, debilitates races by cutting off their best manhood while, at the same time, interrupting their commercial development, the United Kingdom has





THE RIGHT HON. H. H. ASQUITH  
Prime Minister



been largely preserved by its insular position. This factor was of immense importance during the growth of the modern industrial movement which made great progress in England at a time when the nations of Europe were exhausting their energies and resources in useless conflict.

The climate of the British Isles is mild and equable, the winters being considerably warmer and the summers cooler than at other places within the same parallel of latitude, a circumstance which is probably due to the frequently prevailing south-west winds which blow across the Atlantic. The mean temperature of England is  $49.5^{\circ}$  and that of Scotland  $47.5^{\circ}$ .

ENGLAND is the largest and most populous part of the United Kingdom, and is separated from Scotland by the Solway Firth, the Cheviot Hills and the Tweed, and comprises within its borders the whole of Great Britain south of that boundary and east of the mountainous peninsular of Wales. It is divided from the mainland of Europe by the North Sea and the English Channel and from Ireland by St. George's Channel. In shape it forms an irregular triangle, of which the eastern side measures, in a straight line, 350 miles; the southern, 325 miles; and the western, 425; but its shores are deeply indented with bays and estuaries so that its actual coast line is longer in proportion to the area of the land than any other country, with the exceptions of Scotland and Greece.

The people of England number three-fourths of the total inhabitants of Great Britain and Ireland, and constitute the "predominant partner" in the electorate which controls the legislature and policy of the whole country.

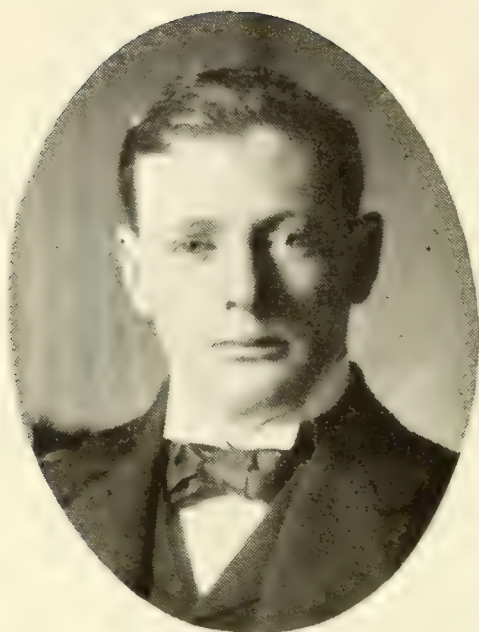
The well-nigh universal use of the English tongue, the common inheritance in English literature and English institutions, which is shared by all the inhabitants of the British Isles alike, have made the name of England synonymous in many minds with that of Great Britain, and even of the British Empire itself, which, in its colonial development, is spoken of in a phrase, rendered famous by Sir Robert Seeley, as "The Expansion of England!"

"The  
Expansion  
of England"

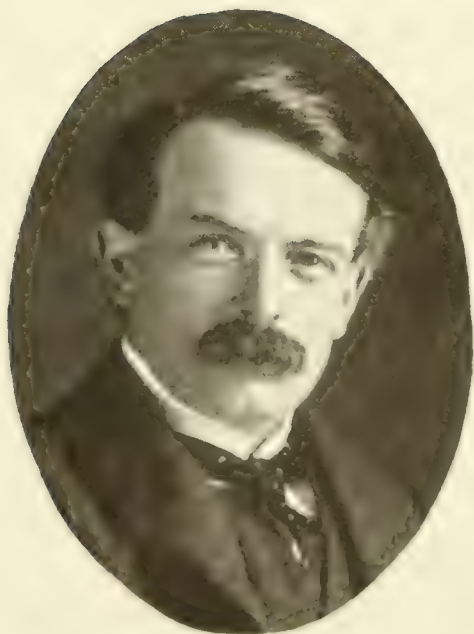




LORD LOREBURN  
G.C.M.G.  
Lord High Chancellor



THE RT. HON.  
WINSTON SPENCER CHURCHILL  
Home Secretary



THE RT. HON.  
DAVID LLOYD GEORGE  
Prime Minister of the United Kingdom



SIR EDWARD GREY  
Secretary for Foreign Affairs

SOME DISTINGUISHED MEMBERS OF THE BRITISH CABINET



The scenery of England is widely diversified and full of charm. The eastern and southern counties consist mainly of fertile plains, crossed by lines of low hills, but the north-west is mountainous, the greatest elevations being in the Lake District, where peaks of the Pennine range, Scawfell, Helvellyn and Skiddaw, rise to a height of over 3000 feet.

WALES.—The most westerly peninsular of Britain was united politically to England by Edward I. in 1282. The English monarch having had a son born at Carnarvon, presented him to the Welsh chieftains as a prince who could not speak a word of English. Since then "Prince of Wales" has been the hereditary title of the heir to the British Throne.

It was among the fastnesses of the Welsh hills that the Celtic inhabitants of Britain held out successfully against the Saxon invaders of the fifth century. They divided the country into ecclesiastical sections which still survive in the antient Bishoprics of Wales, and by the seventeenth century the Celtic tongue was spoken throughout the land west of the Marches which were for long the scenes of sanguinary struggles.

A distinct  
nationality

Welsh is still a distinct nationality with a language and literature of its own.

The country is mountainous in parts and contains Snowdon, the highest peak in South Britain, and many beautiful lakes and rivers.

The minerals are extremely valuable, some of the most important British centres of the coal and iron mining and smelting industry being situated in South Wales.

SCOTLAND.—The Northern portion of Britain, divided from England by the River Tweed, the Cheviot Hills and the Solway Firth, is the Caledonia of the antients, and was a separate and independent kingdom until the year 1603, when James VI. of Scotland, in default of other heirs, ascended the English Throne as great grandson of James IV.'s English wife, the Princess Margaret, daughter of Henry VII.

The coast of Scotland is intersected at so many points by arms of the sea that few places are more than 40 miles





VISCOUNT HALDANE  
Secretary of State for War



THE RT. HON.  
REGINALD MCKENNA, K.C.  
First Lord of the Admiralty



THE RT. HON.  
AUSTRO-LIEFF GLYNN  
Secretary for Ireland



THE RT. HON.  
LEWIS HARCOURT  
Secretary for the Colonies

SOME DISTINGUISHED MEMBERS OF THE BRITISH CABINET



inland. No less than 787 islands, belonging mostly to the Hebrides, Orkneys and Shetland, are scattered about its shores.



Lord Pentland  
Secretary of State for Scotland

The greatest length of the mainland, from Cape Wrath to the Mull of Galloway, is 274 miles; its breadth varies between 24 and 146 miles.

Scotland is famous for its romantic and picturesque scenery, it abounds in hills, lakes and rivers; massive cliffs and broad inlets of the sea. The loftiest mountains are, Ben Nevis (4,406 feet) and Ben Macdhui (4,296 feet); altogether 184 peaks are over 3000 feet above the sea level.

Loch Lomond, whose "bonny banks" are famous in song and story, is a freshwater lake 27 square miles in extent, and the numerous other Lochs such as Ness, Awe, Shin and Tay, make up a total surface of water amounting to 621 square miles.

The principal industries of Scotland are agriculture, distilling, flax, jute and cotton spinning, shipbuilding, engineering, dyeing, printing and brewing.

Scottish  
industries

The Western, Eastern and Mid Lowlands are extremely fertile; the total area under cultivation for the whole of Scotland was recently estimated at 4,859,609 acres.

Coal mining and sea fisheries are also important sources of wealth, and the Scottish people by their energy, thrift and enterprising spirit have contributed very largely to the development of the colonial empire of Britain as well as to the prosperity of their own country.

The antient Celtic language of the country namely, Gaelic has fallen almost entirely into disuse, English being universally spoken with the admixture of many words and phrases of Gaelic origin. In this Scottish tongue a literature peculiarly rich in ballad and story has grown up.



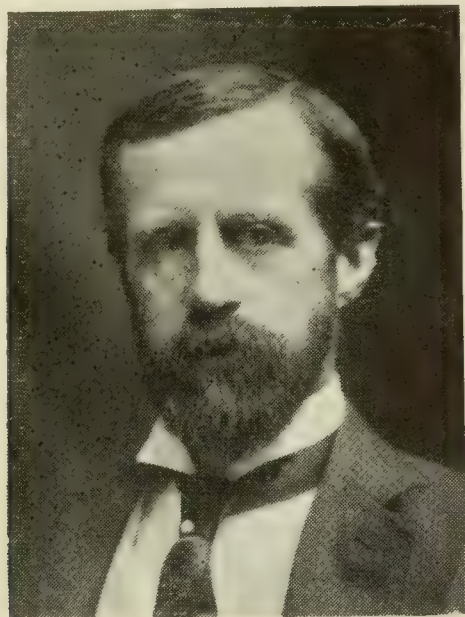


THE RIGHT HON. A. J. BALFOUR  
Prime Minister from 1902 to 1906



Scotland is remarkable for the educational facilities afforded to all classes by her schools and universities, and has contributed many distinguished sons to the service of the Empire in war and peace.

IRELAND.—The island of Erin, known to the antient Greeks as Ierne, and to the Romans as Hibernia, is situated



The Earl of Aberdeen  
Lord-Lieutenant of Ireland

about 60 miles to the west of England. It is for the most part an undulating plain interspersed with low hills, the highest point (Carran-Tual, of the MacGillycuddy Reeks) being 3,414 feet above the sea level. The total area is 32,531 square miles. In prehistoric times, Ireland, like Britain, appears to have been inhabited by people of Iberian stock, who were invaded and conquered by various Celtic tribes. From one of these invasions a Celtic language, Erse

or Goidelic, grew to be the common speech of the people of Ireland, until gradually replaced by the English language.

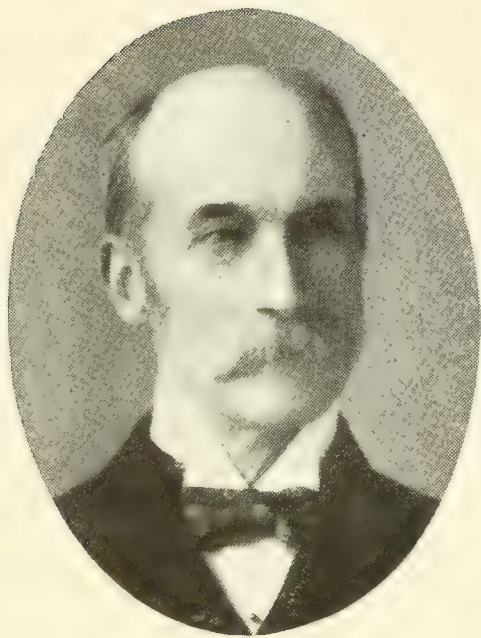
The climate is similar to that of England, but slightly warmer, the mean temperature being 50° F.

The Shannon, the largest river in Ireland (and in the British Isles), rises in the Cuilcagh Mountains, county Cavan, and falls, after a course of 254 miles, into the Atlantic Ocean between Loop Head and Kerry Head.

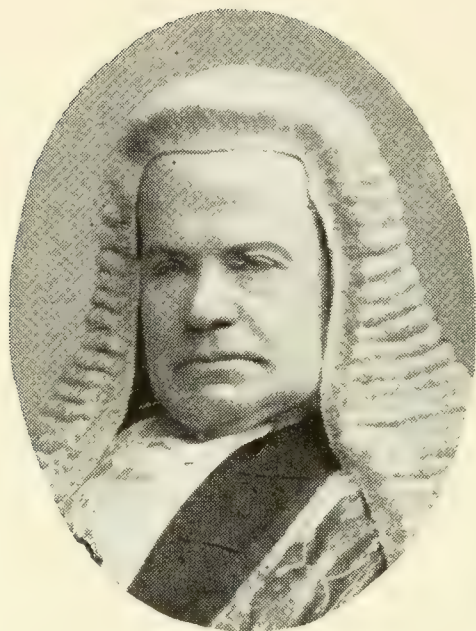
The country is comparatively poor in minerals, the chief exports being agricultural produce and animals. Bogs and morasses occupy 1,772,450 acres, nearly one ninth the entire area of Ireland, the largest being the Bog of Allen.

There are also many lakes, or loughs as they are called. Lough Neagh, which has the largest area (100,000 acres) is in the Province of Ulster; and the lakes of Killarney, famed in song and story for their beautiful and romantic scenery, in Munster.

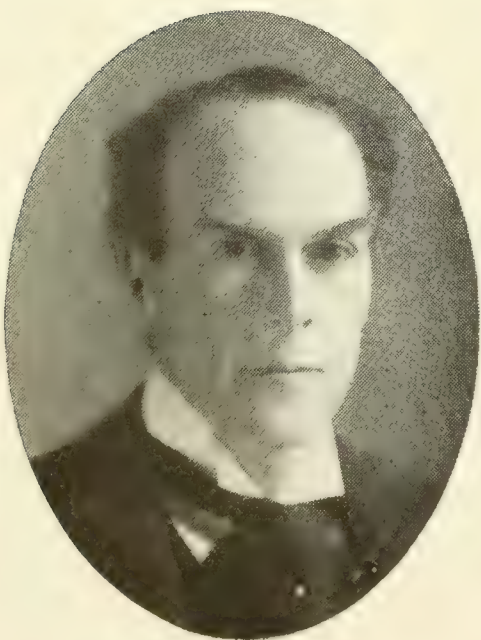




THE MARQUIS OF LANSDOWNE



LORD HALSBURY



THE HON.  
ALFRED LYTTELTON



THE RT. HON.  
AUSTEN CHAMBERLAIN

SOME DISTINGUISHED MEMBERS OF  
MR. BALFOUR'S ADMINISTRATION, 1902 TO 1906



The manufacture of linen is a staple industry in the north of Ireland, shipbuilding on a great scale is carried on at Belfast, and brewing and distilling are also among the important industries of the country.

Ireland has had an eventful and, in some respects, a tragic history, having been the scene of fierce dissensions and frequent bloodshed in the past. From the days when Brian Boru fought with the Norse Sea Rovers in the eleventh century to the massacre of 1641 and Cromwell's terrible vengeance, and later, the battle of the Boyne in 1691, the country has been constantly torn by feuds, to which racial and religious differences have imparted added bitterness.

An  
eventful  
history

In 1801, the parliament of Ireland, previously separate, was joined to that of England by the Act of Union and is now represented by 103 members in the House of Commons and 28 elected peers in the Upper Chamber.

Whether this union is to be reversed by the establishment of a separate Irish legislature in Dublin has been one of the permanent pre-occupations of British politics during the last thirty years.

THE CHANNEL ISLANDS include Jersey, Guernsey, Alderney and Sark, with a total area of 73 square miles, situated close to the north-west coast of France (12 miles at the nearest point). These islands had a population of 95,841 in 1901, and have been an appanage of the British Crown ever since the Norman Conquest, having formed part of the old Duchy of Normandy. French is the official language of the local legislature called the States, and a local modification of the old Norman-French is still spoken by the people. Agriculture and horticulture are among the principal industries, and the islands are famous for excellent breeds of horned cattle.

Part of the  
old Duchy  
of Normandy

THE ISLE OF MAN (MONA) is situated in the North Sea, 27 miles S.W. of St. Bees Head, and the same distance east from the coast of Ireland. The mild and equable climate and picturesque scenery of Man attract every year a

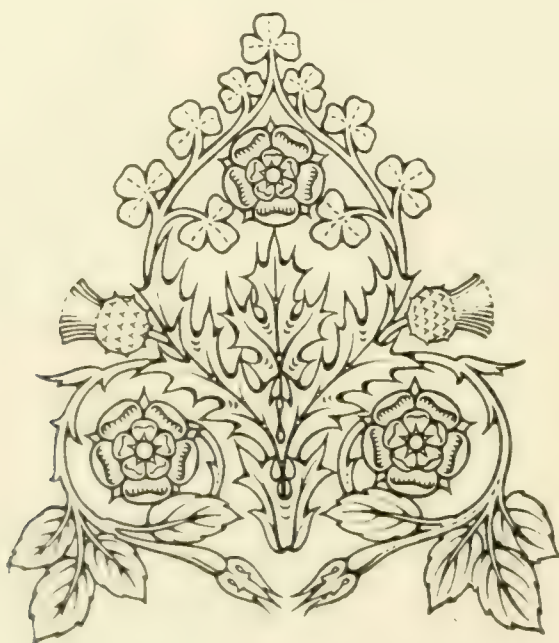


large number of visitors, and the fisheries afford employment to about 4000 persons. The island is  $33\frac{1}{4}$  miles long and  $12\frac{1}{2}$  miles wide, and has a population of 55,598.

The Isle of Man was ruled by Welsh Kings from the sixth to the end of the ninth century and then by Scandinavian Kings until Magnus, King of Norway, ceded his rights in it to Alexander III. of Scotland. On Alexander's death the Manx placed themselves under the protection of Edward I. of England. In 1406 the island was granted to Sir John Stanley in perpetuity, to be held of the Crown of England.

The sovereignty  
of the  
Stanley family

The Stanley family continued to rule it as Kings of Man until 1651, when the style of lord was adopted. This sovereignty descended to the Dukes of Athol, and was ultimately purchased by the British Government for £493,000, but the island still has its own laws, law offices and courts of law. The legislative body is called the Court of Tynwald and consists of the Lieutenant-Governor and Council and the elected House of Keys. The Isle of Man is rich in minerals such as lead, iron, blende and slate, and also exports large quantities of agricultural produce. The Manx speech, which belongs to the Goidelic group of Celtic languages, is now little used, but laws are still promulgated according to antient usage in both English and Manx from the Tynwald Hill.





## GIBRALTAR

**HISTORY.**—Called by the antients Mons Calpe, Gibraltar was regarded as one of the pillars of Hercules, the other being Abyla, fourteen miles away on the opposite shore of Africa.



Sir Archibald Hunter, K.C.B.  
Governor of Gibraltar

Its present name is derived from Tarik, a Saracen warrior who captured the rock in 711 (Gebel-el-Tarik). Having been taken from the Moors by Henry of Castille in 1462, it was strengthened by Charles V. in the next century and regarded as impregnable, but was captured by the British and Dutch combined fleets under Sir George Rooke and the Prince of Hesse-Darmstadt during the war of the Spanish succession in 1704, and

held in spite of a fierce siege in which 10,000 men are said to have perished. In 1713 it was ceded to Britain by the Treaty of Utrecht.

Of the subsequent efforts to retake Gibraltar the most famous was the siege of 1779–1783, when General Elliott (afterwards Lord Heathfield) successfully held out for three and a half years against an enormous force of Spanish and French allies. During this siege for weeks together 6000 shells were thrown daily into the town.

**DATE OF ANNEXATION.**—1713.

**AREA.**— $1\frac{7}{8}$  square miles.

**CLIMATE.**—Tropical.

**POPULATION.**—18,351, excluding the garrison, which in 1909 numbered 5,564.

**CAPITAL.**—Gibraltar is the name of the fortress town as well as the peninsula.

**GOVERNMENT.**—The Governor is in command of the garrison and exercises all the functions, both of government and legislation; there is no executive or legislative council.

**LAWS AND CUSTOMS.**—The civil population is under British law, administered by the Chief Justice (Sir H. R. Pipon Schooles).

**COLONIAL SECRETARY.**—Sir F. Evans.



GIBRALTAR—*continued*

RACES.—English, Spaniards, Jews and Moors.

DEVELOPMENT.—The harbour and dock improvements in progress from 1900 to 1910 (mainly for naval purposes) were estimated to cost £6,500,000.

RELIGION.—Since 1842 has been the See of an Anglican Bishop.

LANGUAGE.—English and Spanish.

PRODUCTS.—Gibraltar has no exports of its own but conducts a brisk transit trade.

MALTA

HISTORY.—A crown colony, antiently called Melita. An island situated in the Mediterranean, about 28 miles south of Sicily. Has had an eventful history, and has been the scene of frequent invasions in antient and modern times. Was held by the Phœnicians, Carthaginians and Romans, conquered by the Vandals, and again wrested from them by the Arabs, A.D. 870. In 1090 was captured by Roger the Norman, and during succeeding centuries frequently changed hands. In 1530 Charles V. gave it to the Knights Hospitallers on their expulsion from Rhodes. After being held by them till 1695, it was surrendered to the French. Captured by the British during the Napoleonic wars in 1800, its cession was formally confirmed by the Treaty of Paris, in 1814, and the Congress of Vienna, in 1815

DATE OF ANNEXATION.—1800.

AREA.—Including two small islands, 117 square miles.

CLIMATE.—Warm, resembling that of Africa more than Europe. During the prevalence of the sirocco (S.E. wind) the temperature rises to 95° F.

POPULATION.—For the Maltese group, 215,879, excluding the garrison, which numbers 8,296. Malta alone contains 188,000 inhabitants.

CAPITAL.—Valetta, population about 31,000. A fine city, picturesque but antiquated, commanding two spacious harbours, and surrounded by massive fortifications. Malta is the chief coaling station of the Mediterranean fleet, and is provided with extensive dockyard accommodation.

GOVERNMENT.—Is administered by a Governor (military), advised and assisted by an executive council. Legislation is carried on by a Council of Government, consisting of the Governor (president), the Lieutenant-Governor and Chief



MALTA—*continued*

Secretary of Government, the Crown Advocate, with other official and elective members.



General Sir L. Rundle, K.C.B.  
K.C.M.G.

Governor and Commander-in-Chief

**LAWS AND CUSTOMS.**—Canon law is recognised as the civil law of Malta.

**RACES.**—Maltese, with a sprinkling of British and foreign residents.

**DEVELOPMENT.**—Population in 1881, including Gozo, numbered 149,782; in 1904 it had risen to 197,070, including 20,000 British and foreign residents. Great progress has been made during the last 60 years in regard to the water supply, the planting of trees, improvement of roads, and the harbour.

**RELIGION.**—Roman Catholic.

**LANGUAGE.**—The vernacular is a dialect of Semitic origin, derived from the Carthaginian and Arabic tongues, but contains a large admixture of corrupt Italian terms. The better class speak English or Italian. Italian is the official language of the law-courts, but parents of pupils in the public schools may choose whether their children shall learn English or Italian. About 90 per cent. learn English.

**EDUCATION.**—Free in the day and night elementary schools (average enrolment, 19,100). Secondary education is provided at a moderate rate. The university is attended by about 240 students, and the Lyceum by about 600 boys. There are also many private schools.

**PRODUCTS.**—Potatoes, onions, cummin seed, and oranges are the principal products exported.

CYPRUS

**HISTORY.**—A large island in the Mediterranean once famous for its copper mines, the metal itself being named after the island, *aes cyprium*, or copper.

Cyprus was called by the classic poets by many different names, such as *Marcaria*, *Amathusia* and *Pappos*, and was successively held by Phœnicians, Persians and Egyptians until 58 B.C., when it became a Roman province. In 1570



CYPRUS—*continued*

it was conquered by Turkey and is still nominally a part of the Turkish empire, but in 1878 was occupied by the British, and has been administered by them since then under a constitution, the excess of revenue over expenditure being retained as part payment for losses in connection with the guaranteed Turkish loan.

AREA.—3,584 square miles.

CLIMATE.—Varies according to altitude; tropical but healthy, except in the low-lying jungle.

POPULATION.—261,587.

CAPITAL.—Nicosia.

GOVERNMENT.—Cyprus still nominally forms part of the Ottoman empire, but the government is administered by England. The inhabitants have been granted a political franchise, which extends to every man who pays taxes. There is a High Commissioner, assisted by a Legislative Council of 18 members, six official and 12 elected.

LAWS AND CUSTOMS.—Each of the six administrative districts of the island has a Court of Law, presided over by an English judge, assisted by two native judges, one a Christian and the other a Mohammedan. There is also a Supreme Court for the whole island, consisting of two English judges.

RACES.—Turks, Greeks and Armenians.

DEVELOPMENT.—A new harbour has been made at Famagusta, and a railway built to Morphou, a distance of 60 miles.

RELIGION.—Greek Christians and Mohammedans.

LANGUAGE.—Turkish and Greek.

EDUCATION.—There are two Boards of Education, one Christian and the other Moslem. The total number of elementary schools is 561 (376 Christian and 185 Moslem). There is also a Moslem "Idadi" school at Nicosia, a Greek gymnasium and several high schools.

PRODUCTS.—Grain, sesame, linseed, wine, silk, olives, locust beans, cotton, wool, hides, aniseed, sponges, etc.



THE BRITISH EMPIRE  
IN  
ASIA





THE RIGHT HON. LORD HARDINGE OF PENSHURST  
Viceroy and Governor-General of India



## THE BRITISH EMPIRE IN ASIA

### INDIA

This great Asiatic peninsular, stretching from the southern slopes of the Himalayas for 1900 miles southward to Cape Comorin, and on the west from the mountainous frontier of Afghanistan and the Gulf of Oman, to the borders of French Indo-China and the Malays, is by far the most important dependency of the British Crown.

The manner in which this great empire grew to be a part of the king's dominions, constitutes at once the strangest and most fascinating chapter in British history.

India is a land of many races and of many tongues, the aboriginal inhabitants have long since been displaced in a large measure by successive waves of invasion from the north, the most primitive peoples now remaining, being probably the Dravidian hill tribes, represented by the Gonds; and Kolarians such as the Santals and the Bhils. The *lingua franca* of India is Urdu or Hindustani, a compound of Persian and Hindi, which is spoken by some 87 millions of the inhabitants and understood in all the populous cities. In addition there are a very large number of languages and dialects, the principal being Bengali (44 millions); Telugu (20 millions); Mahratti (18 millions); Punjabi (17 millions); Tamil (16 millions).

A land  
of many  
races

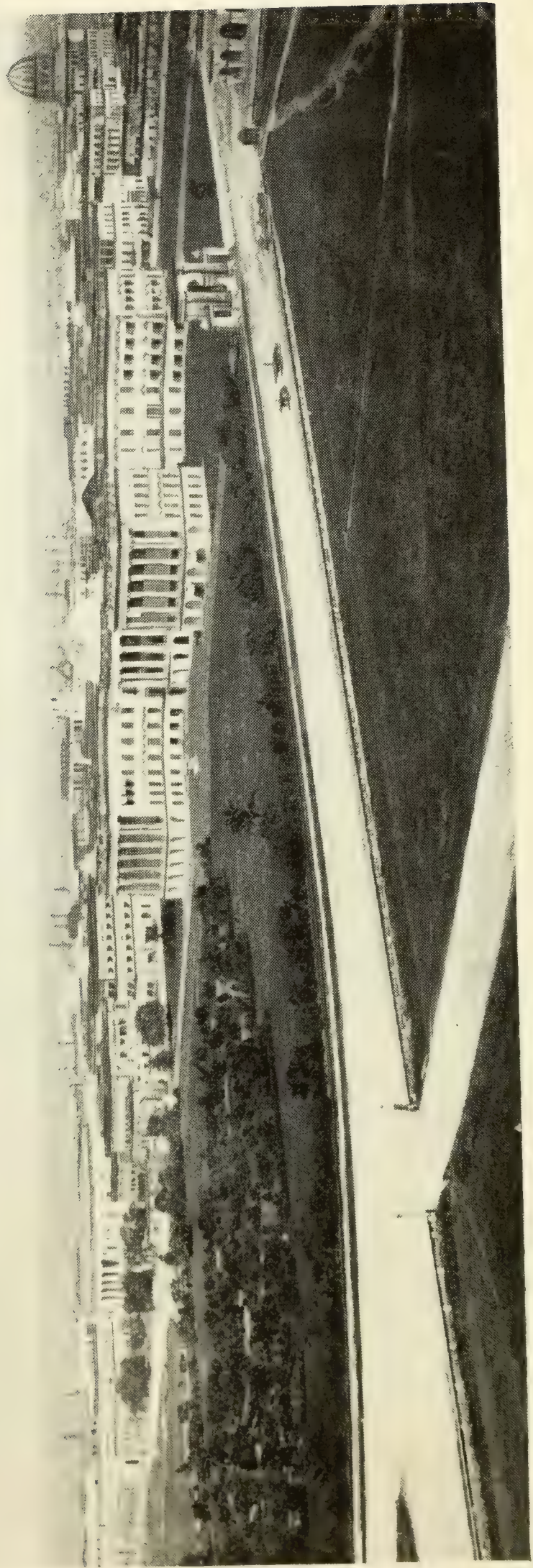
More than three thousand years ago an Aryan race of Indo-Germanic type swept down upon the wide fruitful plain of the Indus from Central Asia, and it has been from across the great natural barrier of the Himalayas that each of the desolating invasions of India, including those of Alexander and of Tamerlane, has come.

The system of caste originated in the attitude of this conquering Aryan race from the north of Hindu Kush, towards the yellow-skinned dwellers in the Himalayan districts, and the shorter dark-skinned races of the south. The antient vedas and upanishads, books on the religion and metaphysics of the Aryans, are written in Sanskrit, and are supposed to date back to 1500 B.C.

In the sixth century Gautama, a Prince of the Kshetriya caste, became the founder of a new religion called Buddhism,

The  
rise of  
Buddhism





CALCUTTA  
Seat of the Supreme Government of India



which after exercising an immense influence over the Hindus, and existing for a long period side by side with Brahmanism, at length lost ground in India itself, and gave way to a fresh revival of Brahmanism in a modified form.

A religion closely allied to Buddhism still survives, however, in the sect of the Jains. After the Greek conquest of 326 B.C., many successive waves of Scythians inundated northern India, and between the years 165 B.C., and A.D. 320, left a lasting impression on the character of the population.

A long period of strife and anarchy followed after the death of the Emperor Harsha, who had secured towards the end of his life the mastery over a vast area.

The successors of Muhammed began to storm the northern frontiers and paved the way for the rule of the Afghan dynasties, who, for 500 years, were the most powerful monarchs in India.

In 1206 Kutb-ud-din, whose memory is still preserved by the Kutb Minar near Delhi, had reached the zenith of his power. In 1398 the mighty Tamerlane (or Timur) burst into India at the head of a great host of Tartars and captured Delhi, laying waste a great part of Hindustan, and about a century-and-a-half later, Babar, a direct descendant of Timur, overthrew the last of the Afghan kings at Panipat and founded the Mogul Empire. This, the greatest unification of government among the diverse races and tribes of India, prior to the British occupation reached its highest development under the famous Shah Jehan (1627–1658), the builder of the Taj Mahal of Agra and many other splendid monuments and public works.

The Great  
Moguls

The dynasty of the Grand Moguls, in many respects glorious, degenerated rapidly, and in another hundred years the empire was being torn in pieces by fresh assaults from without. In 1738 Nadir, Shah of Persia, captured Delhi, gave orders for a general slaughter of the inhabitants, and carried off enormous plunder.

The Mahrattas under their Peishwas conquered Gujarat, Malwa, Berar and Orissa, and became for some time the foremost power in India, but their rule was tyrannical and



predatory, and the excesses committed by their lawless followers and the Pindarees, combined with the growth of the great Sikh kingdom in the Punjab, favoured the disruption of the empire and gave a pretext and an opportunity for European adventure.

During the seventeenth century English, Dutch, French, Portuguese and Danish East India Companies were rivals for the trade of India and, with the exception of the Danish, each secured in turn a degree of political influence in the country.

The first considerable English company was the London East India Company which was incorporated by Queen Elizabeth by royal charter in 1600, and, having overcome some resistance offered by the Portuguese, established a trading port at Surat. The British Ambassador, Sir Thomas Roe, aided by the Emperor Jehangir, did much to improve the position of the Company and in 1639 the English acquired a strip of land on the east coast, which they fortified and named Fort St. George.

The beginning  
of British  
influence

In 1662 Charles II. married Catherine of Braganza and obtained as part of her dowry from Portugal the island of Bombay, and subsequently transferred his rights over it to the Company.

In 1698 the English East India Company was started in rivalry to the old London Company, but the two were ultimately amalgamated as "The United Company of Merchants of England trading to the East Indies." The power and influence of the British grew steadily, and at a critical moment when many diverse and opposing forces were fiercely contending with one another for the soil of India, Lord Clive began the series of epoch-making victories which turned the scale in Britain's favour, and it was by his efforts that the Company received, in 1765, the *diwani* or governing power of Bengal, Behar and Orissa at the hands of the Emperor at Delhi.

The  
victories of  
Clive

Clive was succeeded by another famous Governor of Bengal, afterwards Governor-General on the creation of that office in 1773, namely, Warren Hastings, who vigorously re-



formed the administration, added greatly to the territory under British influence, and laid the foundation of the political suzerainty of Britain.



Gen. Sir O'Moore Creagh, V.C.  
G.C.B., Commander-in-Chief

Under the able administration of the Marquess Wellesley, the policy of forming alliances with subsidiary native states was developed, and the doctrine of the necessity of a paramount power in India for the common welfare, definitely promulgated.

The last year of the eighteenth century saw the fall of Tippoo Sahib, the capture of Seringapatam, and the successful conclusion of the fourth Mysore war.

Thus, partly by inheritance, partly by conquest, and partly by the inevitable convergence of isolated principalities towards the protection of one strong and central government, Britain grew to be the custodian of India, and the guardian of her peoples.

Up to the year 1858, the affairs of British India were administered by the officials of the East India Company, certain members of the board of control being nominated for this purpose by the British Cabinet, but in the year after the great mutiny the government was formally transferred to the crown, and, in 1877, Queen Victoria was proclaimed Empress of India.

Victoria,  
Queen  
Empress

The climate of India is extremely varied, owing to the wide extent of the country, and the differing degrees of elevation existing in it, from the snow-covered peaks of the Himalayas to the torrid plains of the south.

There are well-marked seasons, the cool, the hot, and the rainy. The occasional failure of the monsoon, causes periodical famine.

Further details concerning the most important of the great provinces into which the country has been divided for administrative purposes, are given in the following pages.



## MADRAS

**HISTORY.**—The first British settlement in Madras was made at Masulipatam in 1611. This great province of India, which occupies the most southerly portion of the continent, and has a coast line of 1,730 miles, was not only the oldest, but was also the most important of the three original presidencies before Clive's conquest of Bengal. It was, however, small in extent until the annexation of the Carnatic in 1801. The Laccadive Islands are included under the same administration.



K.C.M.G., Governor

**DATE OF ANNEXATION.**—1746.

**AREA.**—141,726 sq. miles.

**CLIMATE.**—Tropical; differs greatly according to elevation.

**POPULATION.**—38,209,436.

**CAPITAL.**—Madras.

**GOVERNMENT.**—Consists of a Governor assisted by Executive and Legislative Councils.

**LAWS AND CUSTOMS.**—Madras is divided into twenty-one districts, each of which has a collector and district judge. British law, modified by special Indian enactments, prevails.

**RACES.**—Chiefly Hindus.

**DEVELOPMENTS.**—There are good roads, railway communication is extensive, and irrigation works have been carried out on a very large scale.

**RELIGION.**—There are over one million native Christians, Roman Catholics and Protestants; Hinduism or Brahmanism is the prevailing religion.

**LANGUAGE.**—Tamil and Telugu are the principal languages, Malyalum, Canarese and Uriya are also spoken.

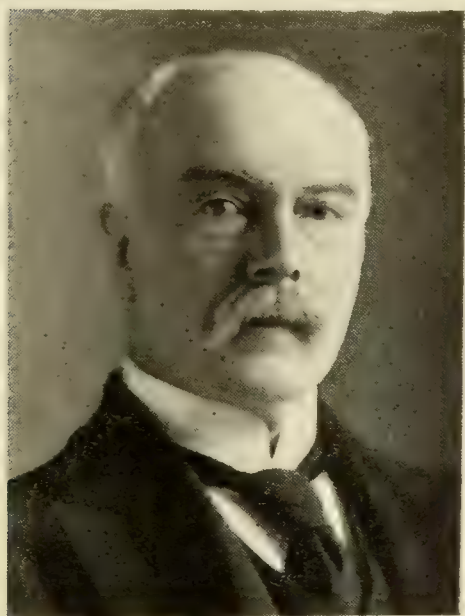
**EDUCATION.**—Numerous government and mission schools and colleges exist.

**PRODUCTS.**—Rice, millet, indigo, coffee, sugar, wheat. Madras is not rich in minerals, but gold and iron have been found, also diamonds in the Karnul district. The forests are of great value, teak being the principal wood.



## BOMBAY

**HISTORY.**—The western province of India takes its name from the island of Bombay, which became a British



Sir G. S. Clarke, G.C.M.G.  
G.C.I.E., F.R.S., Governor

possession in 1662, as part of the dowry of Catherine of Braganza, wife of Charles II. The greater part of the present territory was obtained by annexations from the Mahrattas, and by the lapse of the Satara State. Sind was conquered in 1843 and its administration is, in some respects, separate from the remainder of the presidency.

**DATE OF ANNEXATION.**—1662.

**AREA.**—122,984 sq. miles.

**CLIMATE.**—The coast districts are hot and moist with a heavy rainfall during the monsoon. Mean temperature at Bombay, 72°F.

**POPULATION.**—18,515,587.

**CAPITAL.**—Bombay.

**GOVERNMENT.**—Consists of a Governor, assisted by Executive and Legislative Councils.

**LAWS AND CUSTOMS.**—The administration has its base in the village officer, the patel, he reports to the mamlutdar, and he in turn to the deputy collector, who is responsible to the assistant collector or collector.

On the judicial side there are magistrates, small cause court judges, special and assistant judges, and finally, the High Court of Bombay and the Judicial Commissioner in Sind.

**RACES.**—Especially the home of the Mahrattas.

**DEVELOPMENT.**—Very advanced, the capital is a magnificent city and a great centre of commerce, possessing railways, newspapers, cotton mills, and many magnificent public buildings.

**RELIGION.**—Mohammedan, Hindu, Parsee.

**LANGUAGES.**—Marathi, Gujarati, Sindi and Canarese.



BOMBAY—*continued*

EDUCATION.—Is at a high level, numerous schools exist throughout the province, and in the city of Bombay there is a fine university, also several art colleges, veterinary and technical schools.

PRODUCTS.—Oil seeds, millet, rice, sago, sugar, pepper, cotton, coal, iron, silver and gold.

Manufacturing industries have become very active in recent years.

BENGAL

HISTORY.—The old Presidency of Bengal comprised, in pre-mutiny times, the greater portion of northern India, but the province now under this administration consists of a part of Bengal proper with Behar, Orissa and Chota Nagpur. Fifteen districts of Eastern Bengal were detached from the province in 1905, and combined with Assam, while one district from the Central Provinces was added to Bengal.

DATE OF ANNEXATION.—1757.

AREA.—115,819 sq. miles.

CLIMATE.—Hot and humid on the plains. Mean temperature 77° F.

POPULATION.—50,722,067.

CAPITAL.—Calcutta.

GOVERNMENT.—The Lieutenant-Governor is assisted by a legislative council. An executive council is being created.

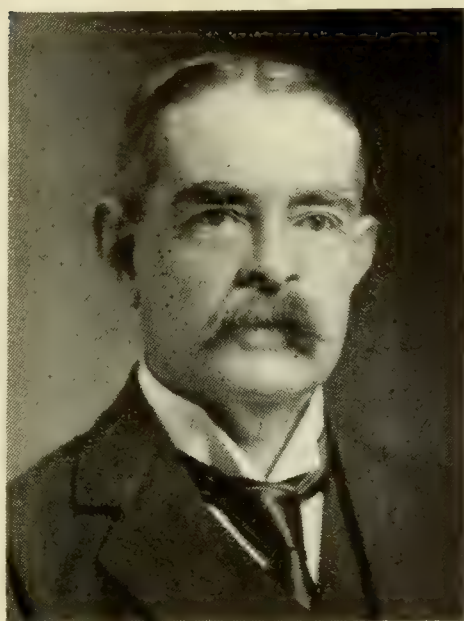
LAWS AND CUSTOMS.—There are nine divisional commissioners under the Lieutenant-Governor of Bengal, who superintend the revenue, criminal and executive administration of their respective divisions. These divisions are again sub-divided into districts, each under its district officer, who, besides exercising general supervision, is also the chief magistrate in his district.

RACES.—Most of the people are descended from the Aryan stock. There are also representatives of the aboriginal races, such as the Santals, Gonds, Kols and Bhuiyas.



BENGAL—*continued*

DEVELOPMENT.—Good railways, canals, and irrigation works have been constructed.



Sir E. N. Baker, K.C.S.I.  
Lieutenant-Governor

RELIGION. — Hinduism and Mohammedanism are the prevailing religions.

LANGUAGES.—The principal are Bengali, Hindi and Bihari.

EDUCATION.—In every village of any size there is a vernacular school called a *pathsala*, and in every district secondary schools affiliated to the Calcutta University, which teach up to the matriculation standard.

PRODUCTS. — Rice, opium, indigo, oil seeds, sugar, tobacco, silk, tea and jute.

EASTERN BENGAL AND ASSAM

HISTORY.—Assam, the region of the Surma and Brahmaputra valleys, was ceded to the British after the first Burmese war in 1826, but it was not until 1838 that, in consequence of the misgovernment of the native rajah, the entire country was placed under British administration. It was for many years a separate province, but in 1905 was linked to Eastern Bengal.

DATE OF ANNEXATION.—1838.

AREA.—106,130 sq. miles.

CLIMATE.—There is an abundant and well distributed rainfall.

POPULATION.—30,961,459.

CAPITAL.—Dacca.

GOVERNMENT.—Is vested in a Lieutenant-Governor and a legislative council.

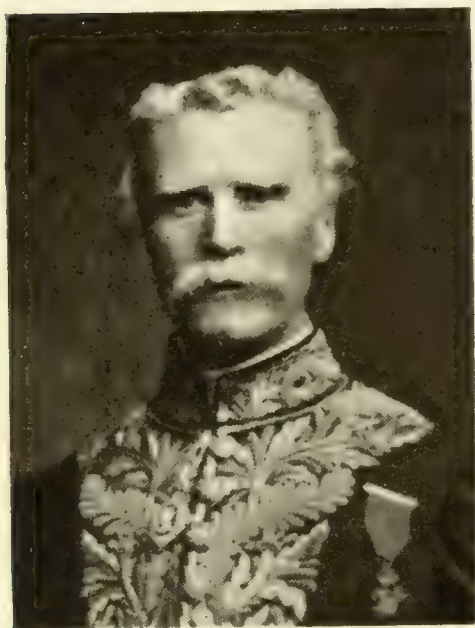
LAWS AND CUSTOMS.—There is a regular system of subordinate and superior courts of justice, culminating in the High Court of Calcutta, which is the Supreme Court of Appeal. Trial by jury has been successfully introduced in Assam.



EASTERN BENGAL AND ASSAM—*continued*

RACES.—Mohammedans and Hindus.

DEVELOPMENT.—A large part of this north-eastern tract is still forest, but there are now over 600,000 acres of tea plantations, and this industry has become one of the most important in India. Railways, telegraph lines and canals, furnish the means of communication.



Sir Lancelot Hare, K.C.S.I.  
C.J.I., Lieutenant-Governor

RELIGION. — Mohammedans, Hindus and some Christian converts.

LANGUAGES.—Bengali and Assamese, are the chief among a great variety of languages.

EDUCATION.—About 20 per cent. of the boys, and 2 per cent. only of the girls, attend school. The Welsh Calvinistic Methodist Mission and other missionary bodies are actively engaged in educational work.

PRODUCTS. — Rice, tea, jute, wheat, oil seeds, sugar, tobacco, coal and iron.

THE UNITED PROVINCES OF AGRA AND OUDH

HISTORY.—Forming the upper part of the great Ganges plain to the west of Bengal, these provinces correspond with the Hindustan of the old Mohammedan historians, and contain many famous cities of Indian history and myth within their borders. These include Benares, the most sacred city of the Hindus, Agra and Allahabad.

From the conquest of Delhi, by Kutb-eb-den, in 1191, to the advent of the English, a period of 600 years, the Mohammedans were the rulers of this part of India. Seven years after Clive's famous victory at Plassey, Sir Hector Munro conquered the combined forces of the Emperor Shah Alim and his ally, Shujah-ud-dowlah, at Baxar. In the absence of any natural military frontier it became necessary to occupy strategic points in Oudh in



THE UNITED PROVINCES—*continued*

order to protect Bengal. After the Mahratta war of 1803, Doab, and the country on both sides of the Jumna, was brought into the sphere of British influence. The whole area was placed under one administration in 1877.



Sir John Prescott-Hewett  
K.C.S.I., C.I.E.  
Lieutenant-Governor

DATE OF ANNEXATION.—1803.

AREA.—107,164 square miles.

CLIMATE.—Hot, but well watered and extremely fertile.

POPULATION.—47,691,782.

CHIEF CITIES.—Allahabad (Agra); Lucknow (Oudh).

GOVERNMENT. — Consists of a Governor and a legislative council.

LAWS AND CUSTOMS. — British law, modified by special Indian enactments and local customs, is administered in civil and criminal cases. The habits of the Hindus, especially in regard to marriage and food, are regulated by the law of caste, all the septs of the same caste resident within a traditional area, are under the rule of a *punchayat*, or council of elders.

RACES.—Hindus of Aryan and Dravidian extraction, and Mohammedans who are divided by history and descent into three great communities—the Pathans of the south-eastern districts, the Moguls of the Upper Doab, and the Afghans in Rohilkland.

DEVELOPMENT.—Railways now traverse almost every district in the provinces, and a net-work of roads connects them with every village of importance. Two great canals on the Upper Doab have been constructed.

RELIGION.—Hindu and Mohammedan.

LANGUAGE.—Hindustani ; also Bihari.

PRODUCTS.—Wheat, rice, barley, pulse, tobacco, millet, cotton, sugar, oil seeds, iron and lead.



## PUNJAB

**HISTORY.**—The province of the Five Rivers, which occupies the north west angle of the great northern plain of India, remained without a break,



Sir Louis W. Dane, K.C.I.E.  
C.S.I., Lieutenant-Governor

under the rule of Mohammedan dynasties of foreign extraction, from the beginning of the eleventh century till the latter half of the eighteenth, when the Sikhs revolted and established a Sikh kingdom. In 1848, after the Sikh war, Dulip Singh's territory became a British province, with Sir John Lawrence as chief commissioner. During the mutiny, many of the Sikh soldiers helped to fight the rebels, and when peace was restored, Delhi and its

territory, were added to the Punjab.

**DATE OF ANNEXATION.**—1849.

**AREA.**—97,209 square miles.

**CLIMATE.**—Very hot from May to September in the plains; varies according to the elevation in the hilly regions.

**POPULATION.**—20,330,339.

**CAPITAL.**—Lahore.

**GOVERNMENT.**—Consists of a Lieutenant-Governor and a legislative council.

**LAWS AND CUSTOMS.**—The inheritance of land proceeds throughout a large part of the Punjab, according to the custom known in England in Saxon time as *gavelkind*, that is, all the sons take equal portions of their father's estate. This custom has produced village communities of peasant proprietors, the descendants of a common ancestor.

**RACES.**—Rajputs, Jats, Pathans and Beluchis.

**DEVELOPMENT.**—Railways with bridges spanning the great rivers, canals, and irrigation works have been constructed in many parts of the province.



PUNJAB—*continued*

RELIGION.—About half the population is Mohammedan, and half Hindu or Sikh ; the Buddhists, Jains and Christians, together, only number about 100,000.

LANGUAGES.—Punjabi and Hindi are the chief languages ; the native language of the Pathans and Beluchis is Pashtu, and is quite distinct from Indian dialects.

EDUCATION.—The Khattris and Kashmiri Pandits have a special aptitude for education and many members of these two races have distinguished themselves in commerce, in the civil service of the government and in the learned professions.

PRODUCTS.—Wheat, millet, barley, maize, pulse, oil seeds, sugar, cotton and salt.

BURMA

HISTORY.—A Buddhist Burman dynasty was established on the Irawadi as early as the eleventh century. The gradual extension eastwards of the borders of British India brought its frontier into proximity with Burma, and, owing to border raids by the Burmese, war broke out in 1824. At its conclusion Assam, Arakan, and Tenasserim, were ceded to the British government. The second and third Burma wars resulted in the deposition of the King of Ava, and the complete annexation of Lower and Upper Burma, which were placed under one administration in 1886.

DATE OF ANNEXATION.—1852.

AREA.—236,738 sq. miles.

CLIMATE.—Very trying to Europeans, in the delta and along the coast ; the rainy season lasts five, six, and sometimes even seven months. From February to April it is dry and hot, the temperature sometimes rising to 100°F. in the shade.

POPULATION.—10,490,624.

CHIEF CITIES.—Rangoon (Lower Burma), Mandalay (Upper Burma).

GOVERNMENT.—Vested in a Lieutenant-Governor and a legislative council.



BURMA—*continued*

**LAWS AND CUSTOMS.**—Woman occupies a higher position in Burma than in other parts of India, and the laws affecting marriage contracts are more equitable. The Burmese are extremely fond of music, dancing and social entertainments.



Sir Harvey Adamson, K.C.S.I.  
Lieutenant-Governor

**RACES.**—Burmans, Karens and hill tribes, such as Kachins, Singphos, Paloungs and Chins.

**DEVELOPMENT.**—Several railways are in operation, including one from Rangoon to Mandalay. The trade of the country has made immense progress during the last forty years.

**RELIGION.**—Buddhism is the religion of nearly 90 per cent. of the people.

**LANGUAGE.**—Burmese.

**EDUCATION.**—The primary schools of the country are the Buddhist monasteries, where every Buddhist lad is expected to serve a novitiate. There are also numerous government schools. Over 60 per cent. of the males in Lower Burma can read and write.

**PRODUCTS.**—Rice, teak, bamboo, cotton, iron, copper, lead, tin, coal and petroleum.

THE CENTRAL PROVINCES AND BERAR

**HISTORY.**—The Central Provinces, which include the Vindhyan and Satpura tablelands and the great plain of Nagpur, were formed, in 1861, out of territory taken from the north-west provinces, and from Madras, and originally belonging to the old Mahratta kingdom of Nagpur.

Previous to the rise of the Mahratta power in India, this region was ruled by native Gond dynasties, the most famous



THE CENTRAL PROVINCES AND BERAR—*continued*  
being that of Garha Mandla, in the sixteenth century. It still contains an unusually large proportion of aboriginal tribes, whose ancestors retreated to the hilly fastnesses of Gondwana, before successive waves of Aryan invasion, in early times.

DATE OF ANNEXATION.—The northern part of the provinces in 1818; Nagpur and its dependencies in 1854; Berar was leased, in perpetuity, from the Nizam of Hyderabad in 1902.

AREA.—82,635 square miles. Berar 17,710 square miles.

CLIMATE.—Hot and dry, except during the south-west monsoon (June to September).

POPULATION.—9,237,654. Berar, 2,754,016.

CAPITAL.—Nagpur.

GOVERNMENT.—Under a chief commissioner. All legislation is enacted by the Governor-General's council.

LAWS AND CUSTOMS.—British law as modified by special Indian enactments prevails, the chief difficulties lie in the direction of the enforcement of sanitary reforms and of forest conservation.

CHIEF COMMISSIONER.—The Hon. R. H. Craddock, C.S.I.

RACES.—Mahrattas, Rajputs and Gonds.

DEVELOPMENT.—Much has been done, by the construction of roads and railways, to open up the country.

RELIGION.—Most of the people are Hindus; about one-seventh belonging to aboriginal or non-Aryan tribes still adhere to their primitive faiths.

LANGUAGES.—Mainly Hindi and Marathi.

EDUCATION.—There are 2,500 State schools and colleges at work in the provinces.

PRODUCTS.—Rice, wheat, millet, pulse, oil seeds, cotton, coal and manganese ore.



## CEYLON

**HISTORY.**—An Aryan invasion from the valley of the Ganges established a Cingalese dynasty in Ceylon in the fifth century, B.C. Buddhism was introduced two centuries later. The Portuguese formed settlements on the western and southern coasts of the island in 1505, but were subsequently dispossessed by the Dutch. The British occupation dates from 1795-6, when the settlements were annexed to the Presidency of Madras. They were formally ceded at the Peace of Amiens in 1802. Owing to a treacherous massacre of British troops war was declared, in 1815, against



Sir H. E. McCallum  
Governor

the government of the interior, whereupon the last Kandyan king was taken prisoner, and the whole island came under British rule.

**DATE OF ANNEXATION.**—1815.

**AREA.**—25,332 square miles.

**CLIMATE.**—The heat is less oppressive than in Hindustan. Mean temperature along the coast 80° F.

**POPULATION.**—4,082,936.

**CAPITAL.**—Colombo.

**GOVERNMENT.**—Is that of a Crown colony, and is in the hands of a Governor, assisted by executive and legislative councils.

**LAWS AND CUSTOMS.**—The basis of the law is Roman-Dutch, but the criminal code has been remodelled from the Indian penal code. In addition to the district courts, there are Gansabáwas, or village councils, empowered to deal with petty offences and trifling claims.

**RACES.**—Cingalese, Tamil, Moormen (Arabs), Burghers, Eurasians and Malays. About 9000 European residents. In the interior are the vestiges of an aboriginal nomadic race, the Veddahs.



CEYLON—*continued*

DEVELOPMENT.—576 miles of railways are owned and worked by the government. Colombo harbour is strongly fortified.

RELIGION.—Buddhism, Brahmanism and Mohammedanism are the chief religions, but Christian missions are making good progress.

LANGUAGE.—The Cingalese speak an Aryan language closely allied to the Pali, or modernised Sanskrit.

EDUCATION.—Unsectarian, and in the vernacular schools, free.

PRODUCTS.—Tea, coffee, cinchona, cocoa, cinnamon, cardamoms, ebony, vanilla and the cocoanut palm.

HONG-KONG

HISTORY.—The island of Hong-Kong was first occupied by the British in 1841, and was formally ceded by the Treaty of Nankin in the following year.

The opposite peninsular of Kowloon was ceded to Great Britain by treaty in 1861, and in 1898 a portion of the Kwongtung province was added. The commercial importance of the colony was greatly enhanced by the discovery of gold in Australia in 1851, and later, by the opening of the Suez canal. It has become the great depôt for Chinese emigration and immigration and for trade with the interior.

DATE OF ANNEXATION.—1842.

AREA.—Including the leased portions of the mainland, 390 square miles.

CLIMATE.—Temperature ranges from 87·3° to 54·9° F. The rainy season extends from May to October. Typhoons are prevalent during the months of July to October.

POPULATION.—428,888.

CAPITAL.—Victoria.

GOVERNMENT.—Is that of a Crown colony administered by a Governor, aided by executive and legislative councils.

LAWS AND CUSTOMS.—Up to 1899, Chinese officials exercised jurisdiction within the walled city of Kowloon, but this has now ceased and a district officer resides there.

RACES.—11,390 Europeans, the remainder are Chinese.



HONG-KONG—*continued*

DEVELOPMENT.—The waterways of the colony form one of the most magnificent harbours in the world and are provided with docks which will accommodate the largest ships.



Sir F. J. D. Lugard  
Governor

RELIGION.—Buddhism, Confucianism, Taoism among the Chinese population.

LANGUAGE.—English and Chinese.

EDUCATION.—The Hong - Kong University for the promotion of Christian civilisation in China, was founded in 1910.

PRODUCTS.—The island itself produces little or nothing, but its position has made it the centre of a very large export and import trade.

WEI-HAI-WEI

HISTORY.—A portion of the Chinese territory of Shantung, including the town of Wei-hai-wei, the island of Lui Kung, the bay and a belt of land ten miles wide along the coast, was ceded by the Chinese government in 1898, in order to provide Great Britain with a suitable naval harbour in north China, and for the better protection of British commerce in the neighbouring seas.



Sir J. H. Lockhart  
Commissioner

DATE OF ANNEXATION.—1898.

AREA.—285 sq. miles.

CLIMATE.—Winter is cold, but dry and bracing, and the summer heat not excessive.

POPULATION.—150,000.

CAPITAL.—Wei-hai-wei.

GOVERNMENT.—Vested in a Commissioner who makes ordinances subject to the approval of the Secretary of State for the Colonies.

RACES.—English, Chinese.

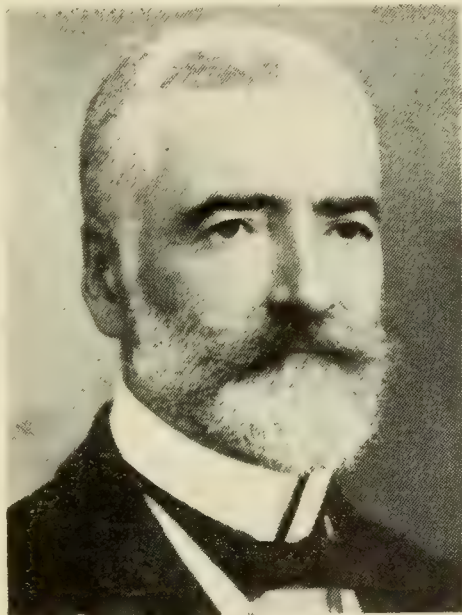
DEVELOPMENT.—The territory has been surveyed by the Royal Engineers, but has not as yet been strongly fortified.



## STRAITS SETTLEMENTS

**HISTORY.**—Penang, Singapore and Malacca, called the Straits Settlements, from their proximity to the Straits of

Malacca, are now under one colonial administration, having been transferred from the control of the Indian government in 1867. Malacca is one of the oldest European settlements in the east, having been taken possession of by the Portuguese, under Albuquerque, in 1511. They were succeeded by the Dutch, who handed over their rights to the East India Company in exchange for Bencoolen, on the west coast of Sumatra.



Sir John Anderson, G.C.M.G.  
Governor

**DATE OF ANNEXATION.**—1824.

**AREA.**—1,600 square miles.

**CLIMATE.**—Hot, with little variation of seasons; mean temperature  $82.7^{\circ}$  F.; the rainfall is pretty evenly distributed throughout the year.

**POPULATION.**—620,127.

**CAPITAL.**—Singapore.

**GOVERNMENT.**—Is vested in a Governor aided by executive and legislative councils.

**LAWS AND CUSTOMS.**—The law in force is contained in local ordinances, and in such English and Indian Acts, and Orders in Council, as have been made applicable to the colony, from time to time. There is a Supreme Court which holds assizes at Singapore, Penang and Malacca.

**RACES.**—Europeans, Chinese, Malays, and natives of India.

**DEVELOPMENT.**—Singapore is a very important port of call for vessels trading between Europe or India and the Far East; it possesses capacious docks and a fine harbour.

**RELIGION.**—Differs according to race; there is an Anglican Bishop of Singapore, chaplains and missionaries.

**LANGUAGE.**—Malay, Chinese, Hindu dialects.

**EDUCATION.**—Is under the control of an Education Board; there are 215 schools, vernacular instruction is provided for Malays, free of charge.

**PRODUCTS.**—Tin, sugar, pepper, nutmeg, mace, sago, tapioca, rice, buffalo hides and horns, rattans, india-rubber, dye stuffs, tobacco.



## THE FEDERATED MALAY STATES

**HISTORY.**—Owing to the anarchical conditions prevailing in some of the States on the mainland of the Malay peninsula, notably Perak, the Pangkor Treaty of 1874 was entered into, and British residents were stationed in Perak, Selangor and Sungei Ujong. In 1889 a protected State, known as the Negri Sembilan (Nine States), was formed. In 1895 a further treaty was signed by the native rulers of the four States constituting their country a federation to be administered under the advice of the British Government.

**AREA.**—26,375 sq. miles.

**CLIMATE.**—Hot, moist and very uniform, average maximum shade temperature 90°, minimum 70° F.

**POPULATION.**—977,000

**CAPITAL.**—In Perak, Tai-Ping; in Selangor, Kwala Lumpur.

**GOVERNMENT.**—Legislation for matters affecting the whole territory is enacted by a federal council, presided over by the High Commissioner of the Straits Settlements, and consisting of the Resident-General, the Sultans of Perak, Selangor and Pahang, the Yam Tuan of Negri Sembilan, the four British residents, and four unofficial members.

**LAWS AND CUSTOMS.**—There is a Chief Judicial Commissioner, and the States are policed by a mixed force of Indians and Malays officered by Europeans.

**RESIDENT-GENERAL.**—Sir W. Taylor, K.C.M.G.

**RACES.**—Malay, Chinese, Hindu.

**DEVELOPMENT.**—There are, at present, 542 miles of railway, chiefly in Perak and Selangor, all owned and managed by the government.

**RELIGION.**—Among the Malays, Mohammedanism has been largely superimposed upon the old pagan beliefs, some of which still survive, however, in the were-tiger superstition, the belief in magic, evil spirits, witchcraft and sorcery.

**LANGUAGE.**—Malay, Chinese and Hindu dialects.

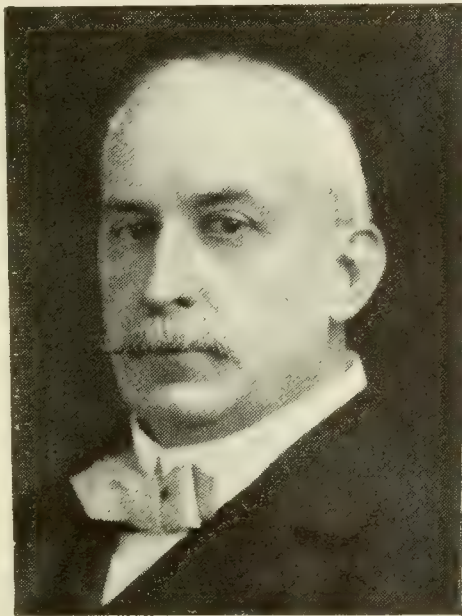
**EDUCATION.**—There are numerous Malay vernacular schools, and a few Tamil schools.

**PRODUCTS.**—Tin, coffee, cocoanuts, sugar, rice and rubber.



## NORTH BORNEO

**HISTORY.**—The northern portion of the island of Borneo, with a coast line of 900 miles, was ceded to a British syndicate in 1878, by the Sultans of Brunei and Sulu. The syndicate's rights were acquired in 1881, by the British North Borneo Provisional Association, and transferred in the following year to the British North Borneo Company. The government assumed a formal protection over the country by agreement in 1888.



E. P. Gueritz, Esq.  
Governor & Commander-in-Chief

**DATE OF ANNEXATION.**—1888.

**AREA.**—31,106 square miles.

**CLIMATE.**—Tropical, but equable; temperature varies from 70° to 90° F.

**POPULATION.**—160,000.

**CAPITAL.**—Sandakan.

**GOVERNMENT.**—Is in the hands of a Governor assisted by a council.

**LAWS AND CUSTOMS.**—The law of the country is based upon the Indian penal, criminal and civil codes, with the adaptation in special instances of Acts in force in the British colonies. There is also an Imam's Court for the administration of Mohammedan law.

**RACES.**—Dyaks, Malays, Kyans, Papus or Negritos, and other tribes.

**DEVELOPMENT.**—Internal communication is mainly by water; some 120 miles of railway have been constructed.

**RELIGION.**—Animistic Paganism, with barbarous rites which included head-hunting, was the old religion of the native dyaks. The settlers along the coast are mainly Mohammedans. There is a Church of England and a Roman Catholic mission.

**LANGUAGE.**—Dyak.

**PRODUCTS.**—Sago, timber, coffee, pepper, gutta-percha, india-rubber, camphor, resin, cutch. Coal and large deposits of iron ore have been discovered.



## SARAWAK

**HISTORY.**—A large strip of country on the north-west coast of Borneo, which was handed over by the Sultan of Brunei, in 1842, to Sir Charles Brooke, who ruled as Rajah till 1868, when he was succeeded by his nephew, H. H. Rajah Sir Charles Johnson Brooke, G.C.M.G. In 1888 Sarawak was placed under British protection.



H. H. Sir Charles Johnson  
Brooke, G.C.M.G.  
Rajah of Sarawak

**AREA.**—42,000 square miles.

**CLIMATE.**—Tropical.

**POPULATION.**—500,000.

**CAPITAL.**—Kuching.

**GOVERNMENT.**—Vested in the Rajah and a supreme council, of which he is president.

**LAWS AND CUSTOMS.**—Under the just and equitable rule of the Brookes, Sarawak has been reclaimed from a condition of barbarism.

**RACES.**—Malay, Dyaks and Chinese.

**DEVELOPMENT.**—There are good roads round the capital, and from thence to the mining districts in upper Sarawak. Internal communication is largely by means of the numerous rivers.

**RELIGION.**—Mohammedanism and paganism, but Christian missions, both Protestant and Roman Catholic, are well represented.

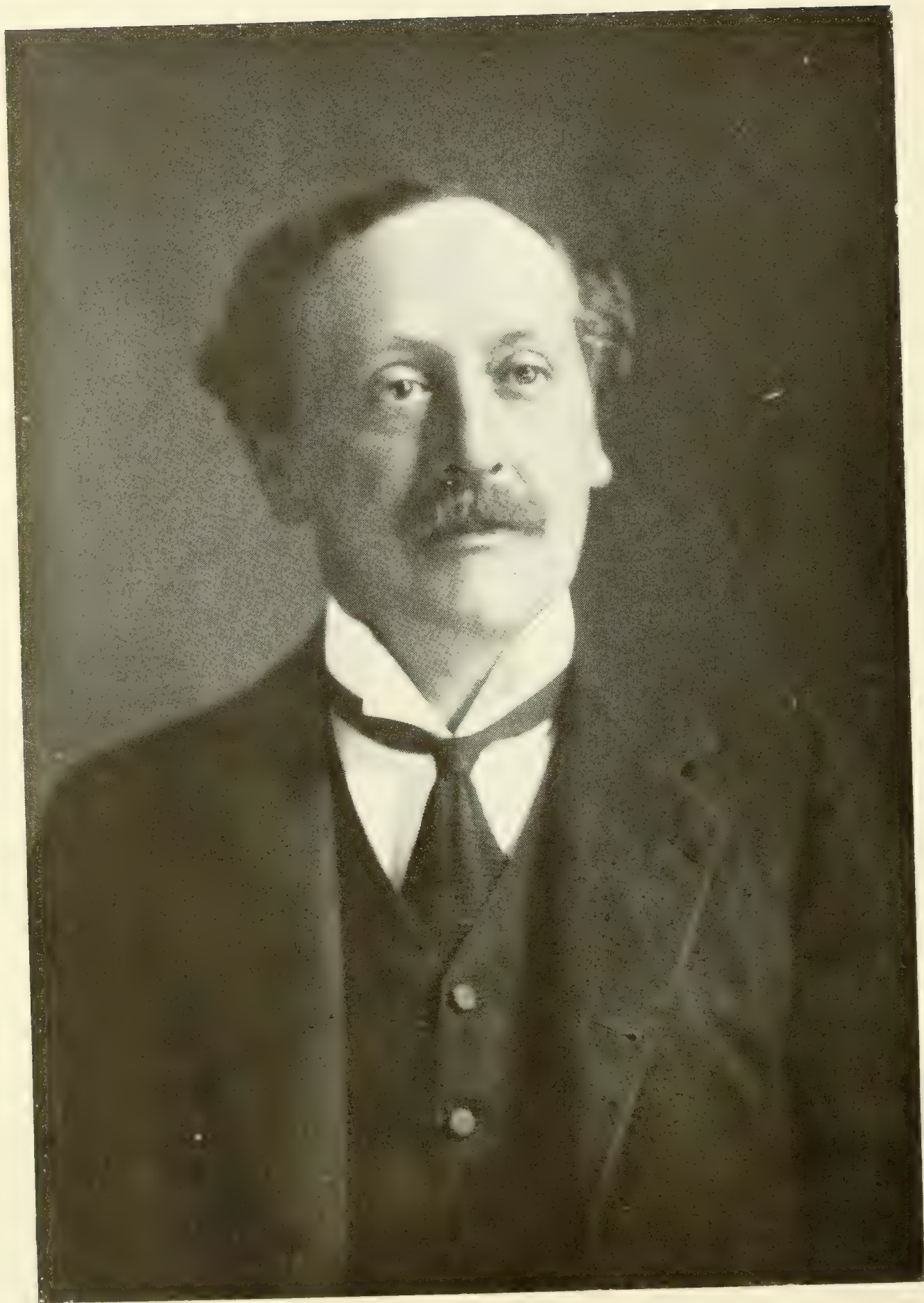
**EDUCATION.**—Mission schools exist at Kuching, under the superintendence of the Bishop of Singapore and Sarawak and the Roman Catholics.

**PRODUCTS.**—Rubber, pepper, sago, coal and gold.



THE BRITISH EMPIRE  
IN  
AFRICA





VISCOUNT GLADSTONE  
First Governor-General of the Union of South Africa



## THE UNION OF SOUTH AFRICA

UNDER the terms of the South African Act passed by the Parliament of the United Kingdom on September 20,



General Louis Botha  
Prime Minister of the South  
African Union

1909, the Colonies of Cape of Good Hope, Natal, the Transvaal and the Orange Free State were united into one government under the name of The Union of South Africa.

The first formal steps towards the execution of this Act, designed as a magnanimous appeasement of racial animosities after a long and terrible conflict, was the Royal Proclamation on December 3, 1909. A few weeks later the name of Mr. Herbert Gladstone, now Viscount Glad-

stone, was announced as the first Governor-General of this great congeries of South African States.

On the arrival of Viscount Gladstone in the Colony, General Botha was invited to form an executive council, and became Prime Minister of the first Administration.

Union day, May 31, 1910, on which the Union actually came into being, was observed as a public holiday throughout South Africa, with great rejoicings and thanksgiving. A message was received from King George, expressing His Majesty's "earnest hope and strong confidence that the new Constitution will, under Divine Providence, further the highest welfare of South Africa, and add strength to the Empire."

The lamented death of King Edward having prevented the proposed voyage of King George (then Prince of Wales) to South Africa, that duty was delegated to the Duke of Connaught, who, with the Duchess, visited the Colony, arriving at Cape Town on October 31, 1910.

The Duke of Connaught opened the first Union Parliament in the name of the King with great ceremony on November 4, and afterwards made an extensive and interesting tour of the South African Colonies.





CAPE TOWN

The seat of the Union of South Africa Legislature and capital of the Province of Good Hope



## THE PROVINCE OF THE CAPE OF GOOD HOPE

**HISTORY.**—As early as 1486, Bartholomew de Diaz, a Portuguese commander, landed at Algoa Bay, and Vasco de Gama doubled the Cape eleven years later. The British first visited it in 1561, and, in 1620, two English East India Commanders took formal possession of the Cape in the name of Great Britain, but no settlement was formed. For many years the Dutch East India Company were the most active colonisers in this region. In 1795, Holland having yielded to the French Revolutionary Government, an English force, proceeded to the Cape to secure it for the Prince of Orange, and General Craig, the commanding officer, became Governor. After the Peace of Amiens, the colony was restored to the Batavian Republic, but was again captured in 1806, and finally ceded to the British at the general peace of 1814.

**DATE OF ANNEXATION.**—1814.

**AREA.**—276,995 square miles.

**CLIMATE.**—Dry and bracing, mean temperature 62·2° F.

**POPULATION.**—As estimated in 1907, was 2,507,500, of whom 610,680 were Europeans.

**CAPITAL.**—Cape Town.

**GOVERNMENT.**—An Administrator is appointed every five years by the Governor-General; he is assisted by an elective Provincial Council and by an Executive Committee of four members.

**LAWS AND CUSTOMS.**—Roman-Dutch law prevails in the Colony, as modified by Colonial legislation.

**ADMINISTRATOR.**—His Hon. N. F. de Waal.

**RACES.**—British, Dutch, French and other Europeans, Malays, Hottentots, Fingoes and Kaffirs.

**DEVELOPMENT.**—The diamond fields of Griqualand West, centering round Kimberley, have been extensively worked. The province now contains 3,262 miles of railway.



CAPE OF GOOD HOPE—*continued*

RELIGION.—There is an Anglican Archbishop of Cape Town, and, beside the Episcopalian, there are the Dutch Reformed, Independent, Presbyterian, Wesleyan and Roman Catholic Denominations.

LANGUAGES.—English and Dutch.

EDUCATION.—University of the Cape of Good Hope, and numerous schools are assisted by Government grants. The number of schools in operation in 1909 was 3,681, attended by 172,225 scholars. There are also five colleges.

PRODUCTS.—Gold, diamonds, copper, wool, wheat, cattle and ostriches.

NATAL

HISTORY.—Discovered by Vasco de Gama in 1497, the coast of Natal was colonised by a small company of Dutch settlers in 1721, but soon afterwards abandoned. In 1837, Boers from Cape Colony migrated to Natal and they obtained a decisive victory over the Zulus in 1839. Owing to disturbances in the district, in 1842 a military expedition was sent to Natal from Cape Colony, and, after suffering defeat, was reinforced by a contingent under Colonel Cloete, who received the submission of the Boers at Pietermaritzburg on July 5, 1842. The military power of the Zulus was broken at the battle of Ulundi in 1879, and Cetshwayo, their King, was captured. He was afterwards restored, but, being unable to maintain a stable government, Zululand was, in 1887, with the general consent of the inhabitants, declared British territory. The Amaputaland Protectorate was added ten years later.

DATE OF ANNEXATION.—1842.

AREA.—36,434 square miles.

CLIMATE.—Healthy, heat seldom oppressive, mean temperature 64·71° F.

POPULATION.—1,206,386.

CAPITAL.—Pietermaritzburg.

GOVERNMENT.—By an Administrator aided by an elective Provincial Council and an Executive Committee of four members.



NATAL—*continued*

**LAWS AND CUSTOMS.**—Modification of the old Dutch law. A Native High Court administers justice and deals with all crimes arising out of native law and custom.



The Hon. C. J. Smythe  
Attorney-General

**RACES.**—Europeans, Kaffirs and Asiatics.

**DEVELOPMENT.** — Railways to Orange Free State and Transvaal have been constructed. Sugar and Assam tea have been largely cultivated since 1863, and the immigration of Indian Coolies has been encouraged.

**RELIGION.**—Is well provided for by denominational bodies.

**LANGUAGES.** — English, Dutch, Kaffir.

**EDUCATION.** — Two Government High Schools, 41 Primary, 5 Indian and 2 Government Schools for coloured children.

**PRODUCTS.**—Wool, cereals, coal, iron and sugar.

THE TRANSVAAL

**HISTORY.**—The Transvaal was for a long period an independent State, and, from 1884 to 1900, was officially styled the South African Republic. The region had been occupied, as early as 1850, by pioneer Boers from Cape Colony who had driven out or subdued the native Basutos. In 1877, owing to chronic war with the natives, and accumulated debts, the Republic was on the eve of dissolution when the British undertook the subjugation of the rebellious tribes, and put the finances of the State in order. Owing to disagreements there followed the war of 1880–81, marked by the defeat and death of General Colley at Majuba Hill. The Republic continued under the suzerainty of Great Britain, but, in 1886, the discovery of gold on the Wietwatersrand caused a large addition of



THE TRANSVAAL—*continued*

outlanders to the population, and their discontent at the denial of political status ultimately led to the second Boer

War, which commenced October, 1899. After a long struggle, British Arms were at length victorious, and terms of peace were signed May 31, 1902.



His Hon. J. F. B. Rissik

DATE OF ANNEXATION.—1900.

AREA.—113,642 square miles.

CLIMATE. — Salubrious; rain copious on the eastern side, the interior and west very dry.

POPULATION.—1,354,200.

CAPITAL. — Pretoria.

GOVERNMENT. — By an Administrator, aided by a Provincial Council (elected for three years), and an Executive Committee of four members.

LAWS AND CUSTOMS.—For local administration there are elective municipalities.

RACES.—British, Boers of Dutch descent, aboriginal and other coloured races.

DEVELOPMENT.—Immense progress has been made in the gold mining centre round Johannesburg, now the largest city in South Africa.

RELIGION.—English Episcopal and Free Churches, and the Dutch Reformed Church.

LANGUAGES.—English, Dutch and native dialects.

EDUCATION.—Elementary education free and compulsory for white children; both English and Dutch is taught in the schools.

PRODUCTS.—Gold, wool, cattle, hides, grain and ostrich feathers.



## ORANGE FREE STATE PROVINCE

**HISTORY.**—Founded by the Boers who trekked from Cape Colony in 1836, and recognised in 1854 as an independent Dutch Republic, the Orange Free State joined the Transvaal Government in October, 1899, in its dispute with the British, and commenced hostilities. After its occupation by Lord Roberts, the country was formally annexed, and has since become one of the constituent provinces of the South African Union.

**DATE OF ANNEXATION.**—1900.

**AREA.**—50,392 square miles.

**CLIMATE.**—Hot, especially in the middle and western divisions where the temperature often rises to 105° F. and 108° F. The eastern division is cooler and more humid.

**POPULATION.**—At census of 1904, 387,315, of whom 142,679 were Europeans.

**CAPITAL.**—Bloemfontein.

**GOVERNMENT.**—By an Administrator, aided by a Provincial Council (elected for three years). There is an Executive Committee of four members.

**LAWS AND CUSTOMS.**—Roman-Dutch law prevails. The Resident Magistrates' Courts have both civil and criminal jurisdiction.

**ADMINISTRATOR.**—His Hon. A. E. W. Ramsbottom.

**RACES.**—British and Dutch, Kaffir and other natives.

**DEVELOPMENT.**—Nearly 1000 miles of railway have been constructed.

**RELIGION.**—Chiefly that of the Dutch Reformed Church.

**LANGUAGES.**—English and Dutch.

**EDUCATION.**—Administered by a Government Department at Bloemfontein. There are 377 free Government schools in the colony.

**PRODUCTS.**—Horses, cattle, ostriches, grain; diamonds, garnets and other precious stones; coal.



## BASUTOLAND

**HISTORY.**—A native province which was separated from Cape Colony in 1884, after a great national Pitso of the Basutos had taken place, in which their representative chiefs had agreed to comply with the terms offered them by the Imperial Government.

**DATE OF ANNEXATION.**—1884.

**AREA.**—10,293 square miles.

**CLIMATE.**—Excellent, mean temperature 58·76° F.

**POPULATION.**—The census of 1904 showed 347,731 natives, and 895 white people.

**CAPITAL.**—Maseru.

**GOVERNMENT.**—The territory is governed by a Resident Commissioner under the direction of the High Commissioner for South Africa, the latter possessing the legislative authority which is exercised by proclamation.

**LAWS AND CUSTOMS.**—The chiefs adjudicate on cases between natives; appeals lying to the Magistrates' Courts. A hut tax is levied.

**RESIDENT COMMISSIONER.**—Herbert Cecil Stoley, C.M.G.

**RACES.**—Basutos, a people belonging to the Bechuana stock, or closely allied to it.

**DEVELOPMENT.**—The roads are now in good condition; a bridge has been constructed across the little Caledon River.

**RELIGION.**—Christian Missions are making good progress.

**LANGUAGE.**—Suto or Sesuto.

**EDUCATION.**—There are 254 schools, with 13,000 scholars, a large proportion being in the schools of the French Protestant Mission. Grants in aid of education to the extent of £9,100 were made in 1909-10.

**PRODUCTS.**—Immense herds of cattle and horses are reared, and it is one of the finest grain-producing districts in South Africa.



### BECHUANALAND PROTECTORATE

**HISTORY.**—A large region to the north of Cape Colony, which was placed under British protection in 1885, when Sir Charles Warren visited the principal chiefs, Khama, Gasitsive and Sebele. The limits of the Protectorate were more clearly defined in 1891, and since the annexation of British Bechuanaland to the Cape, the Protectorate has been governed as a separate territory.

**DATE OF ANNEXATION.**—1885.

**AREA.**—275,000 square miles.

**CLIMATE.**—Healthy during the summer which lasts for seven months of the year.

**POPULATION.**—150,000.

**CHIEF TOWNS.**—Francistown, Gaberones, Tati. The centre of administration is at Mafeking in Cape Colony.

**GOVERNMENT.**—By a High Commissioner assisted by two Assistant Commissioners.

**LAWS AND CUSTOMS.**—The principal native chief is Khama, chief of the Bamangwato. The Bechuanaland Protectorate Police Force is under the direct control of the Resident Commissioner.

**RESIDENT COMMISSIONER.**—Lieut.-Col. Pauzera.

**RACES.**—Bechuana Kaffirs, of Bantu race.

**DEVELOPMENT.**—The railway to Bulawayo runs along the eastern border of the Protectorate. Little has been done as yet to develop the country, a large portion of which is taken up by the Kalahari Desert.

**RELIGION.**—Totemic, but Christianity is making good progress.

**LANGUAGE.**—Chuana or Sechuana.

**PRODUCTS.**—Maize, cattle and wood.

### SWAZILAND

**HISTORY.**—Swaziland or “Kwangwane” as it is called by the natives, is a somewhat mountainous region adjacent to the Transvaal and Natal. The natives are the descendants of early Bantu invaders. The independence of Swaziland was expressly stipulated for in the Conventions of Pretoria (1881) and London 1884. In 1890, with the consent of the



SWAZILAND—*continued*

Swazis, a provisional government was set up under a Convention between Great Britain and the South African Republic. After the Boer war, the country passed with the Transvaal under British rule.

DATE OF ANNEXATION.—1903.

AREA.—6,536 square miles.

CLIMATE.—Well watered and healthy except in the Low Veldt.

POPULATION.—86,381 including 890 whites.

CAPITAL.—Mbabane.

GOVERNMENT.—A native Queen Regent, Lonatsebeni. A Resident Commissioner, with Assistant Commissioners and other Officers, administer justice and collect taxes.

LAWS AND CUSTOMS.—The jurisdiction of the Paramount and other chiefs is retained in civil cases affecting aboriginal natives only. For Europeans the Roman-Dutch Common Law as modified by Statute prevails.

RESIDENT COMMISSIONER.—R. T. Coryndon, Esq.

RACES.—Ama-Swazis, a section of the Zulu race.

DEVELOPMENT.—Tin mining is carried on extensively in the neighbourhood of Mbabane. Experiments are being conducted in cotton growing.

RELIGION.—The English Church Mission, the South African General Mission and the Scandinavian Alliance Mission have representatives in the country.

EDUCATION.—Schools for Europeans and native children exist at Bremersdorp, Ferreira's Hluti and Zambodi.

PRODUCTS.—Tin, gold (small quantity), and agricultural produce such as millet, maize, pumpkins and ground nuts.

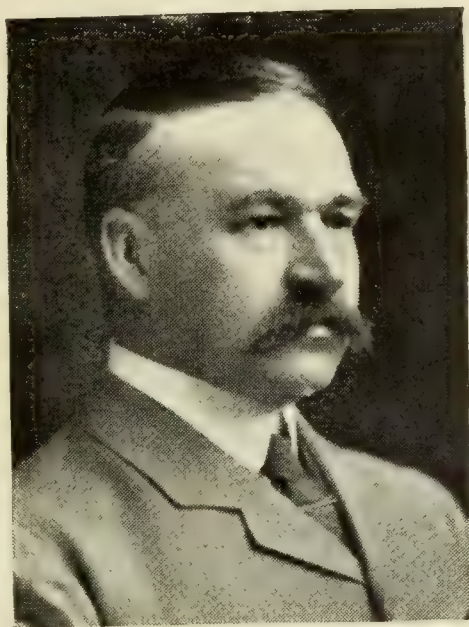
RHODESIA

HISTORY.—A Royal charter was granted in 1889 to the British South Africa Company conferring upon it large administrative powers in the region north of the Transvaal. This vast territory, as yet only partially developed, was named Rhodesia after the distinguished South African political leader, Cecil Rhodes.



RHODESIA—*continued*

In 1893, the Matabeles, having made a raid upon Mashonaland, were defeated at Bulawayo.



Sir W. H. Milton, K.C.M.G.  
Administrator

A second rebellion of the natives led to the war of 1896. During the Boer war, Southern Rhodesia raised a company of volunteers, who took part in the relief of Mafeking.

DATE OF ANNEXATION.—1889.

AREA. — Southern Rhodesia, 184,000 square miles. North-Eastern Rhodesia, 109,000 square miles.

CLIMATE. — Sub-tropical, the Uplands of Southern Rhodesia are healthy and bracing.

POPULATION. — A little over a million, of whom about 1000 are Europeans.

CAPITAL.—Salisbury.

GOVERNMENT.—An Administrator assisted by an Executive Council, consisting of four members who hold office for three years, and a Legislative Council, consisting of the Administrator, the Resident Commissioner and 14 members.

LAWS AND CUSTOMS.—As those in force in the Cape of Good Hope Province as far as they are applicable.

RACES.—British; Matabeles, an offshoot of the Zulu nation, and Mashonas.

DEVELOPMENT.—In 1905, 1,900 miles of railways were open, and the Cape to Cairo line reached the Victoria Falls in 1904. There are about 300 registered companies interested in mining and development work in the territory.

RELIGION.—Totemism and Fetishism still linger among the natives.

LANGUAGES.—Ndau, Shona and Tabele.

EDUCATION.—There were in 1908, 22 State-aided schools and 50 native schools.

PRODUCTS.—Gold, silver, copper, blende, antimony, arsenic, lead and coal, ivory, tobacco, rubber, cotton, cereals, hides, and skins.



## WEST AFRICAN DOMINIONS

### GAMBIA

**HISTORY.**—The Gambia, one of the great rivers of Western Africa, was discovered by Portuguese navigators in 1447.



Sir George C. Denton  
Governor

Queen Elizabeth granted a charter to a British company to trade, and in 1686, a fort was built upon a rocky island. The settlement was recognised as British, by the Treaty of Versailles, 1783, and, in 1807, was put under the government of Sierra Leone. It became a Colony in 1843, and was constituted a separate government in 1888, under which are now included the Island of St. Mary, British Combo, Albreda, the Ceded Mile, McCarthy's Island and various

other islands and territories on the banks of the river.

**DATE OF ANNEXATION.**—1843.

**AREA.** — Including additional protected areas, 3,980 square miles.

**CLIMATE.**—The best part of the year is from the end of November to the middle of May. Unhealthy during the rainy season.

**POPULATION.**—160,807.

**CAPITAL.**—Bathurst.

**GOVERNMENT.**—Administered under a Governor with an Executive and a Legislative Council.

**LAWS AND CUSTOMS.**—Travelling commissioners go for 200 miles up the river, there are also magistrates and native courts. A hut tax of about 4s. per family is imposed in the Protectorate.

**RACES.**—Negroes of the Jollof, Mandingo, Sarahouli, Fullah and Jolah tribes.

**DEVELOPMENT.**—Communication with the interior is easy, owing to the numerous steamers on the river. There are good roads. No railway systems, or local telegraph have been opened up yet.



GAMBIA—*continued*

RELIGION.—Mohammedans and Pagans.

LANGUAGE.—Jollof and Mandingo are the chief native dialects.

EDUCATION.—There are eight elementary Government-aided schools, also a Wesleyan secondary, and a technical school.

PRODUCTS.—Ground nuts, beeswax, hides, rice, millet, sweet potatoes, cotton and india-rubber.

THE GOLD COAST COLONY

HISTORY.—The first European settlement on the Gold Coast was established in 1482, when the Fort San Jorge da Mina was built and garrisoned by the Portuguese. Later, the Dutch and other nationalities set up trading stations on the coast. In 1807 the Ashantis conquered the Fantis, a tribe friendly to the British, and, in 1824, defeated Sir Charles McCarthy at Accra. Two years later the Ashantis were totally defeated by Colonel Purdon, and a treaty of peace was subsequently concluded by the governor, Mr. Maclean, who greatly strengthened British influence on the coast, and became Judicial Assessor to the native chiefs. By the convention made between England and Holland in 1871, the Dutch transferred all their forts and possessions to the English. After the victories of Sir Garnet Wolseley in the Ashanti war of 1873, the Gold Coast Colony was separated from the West Africa Settlements, and placed under a Governor-in-Chief.

DATE OF ANNEXATION.—1850.

AREA.—Including Ashanti and Protectorate, about 82,000 square miles.

CLIMATE.—On the low and swampy coast, very unhealthy; better inland.

POPULATION.—1,500,000, of whom about 1000 are Europeans.

CAPITAL.—Accra.

GOVERNMENT.—Administered by a governor with an Executive and a Legislative Council.



THE GOLD COAST COLONY—*continued*

**LAWS AND CUSTOMS.**—British Common Law and Equity modified by local ordinances. Native law is administered in all the courts, in so far as it is not incompatible with statute law.



J. F. Thorburn, Esq., C.M.G.  
Governor

**RACES.**—Ashanti, Fanti.

**DEVELOPMENT.**—Great efforts are being made to improve sanitary conditions of the coast towns. Telegraph and railway systems have been established.

**LANGUAGE.**—Acera or Ga, Ashanti, Fanti and Ewe are the chief native dialects.

**RELIGION.**—Fetishism among the more degraded coast natives, but the number of Mohammedans and Christians is steadily increasing.

**EDUCATION.**—The Government assists the Wesleyan, Roman Catholic and German missionaries in educational matters, and has established schools of its own.

**PRODUCTS.**—Gold, rubber, ivory, gum-copal, cocoa, cotton, lumber, grains and oil.

SIERRA LEONE

**HISTORY.**—This old-established British colony dates from the cession, by King Nembona, of certain coast lands to Captain John Taylor and a company of settlers in 1788. During the period when England was struggling to suppress the over-sea traffic in slaves, Sierra Leone was much used as a settlement for Africans rescued from slave ships.

The eastern frontier of the colony was settled by an agreement made between Great Britain and France in January, 1895, by which the colony relinquished all control of the head waters of the Niger.

**DATE OF ANNEXATION.**—1788.



SIERRA LEONE—*continued*

AREA.—Including protected territory, 53,100 square miles.

CLIMATE.—Very hot and moist. Temperature varies between  $64.5^{\circ}$  and  $100.5^{\circ}$  F. A dry, dust-laden wind, the "Harmattan" is prevalent between December and March.

POPULATION.—About 1,500,000.

CAPITAL.—Freetown.

GOVERNMENT.—A Governor aided by Executive and Legislative Councils.

GOVERNOR.—Sir Edward M. Merewether.

LAWS AND CUSTOMS.—Among the natives, a curious tribal system of government exists; each village has its nominal king but he, in turn, is subject to a secret and powerful association the *purra* or *porro* possessing its special language, tattoo marks and symbols.

RACES.—The leading native tribes are the Temnes in the north, the Mendes in the south, and the Yonnis in the middle districts.

DEVELOPMENT.—A railway has been constructed from Freetown into the interior as far as Pendemba, a distance of 227 miles.

RELIGION. — Protestants, Roman Catholics, Moham-medans and Pagans.

LANGUAGE.—English, and native dialects such as Mende, Bullon and Yalunka.

EDUCATION.—There are 75 primary schools, 74 secondary schools, a technical school, and Fourah Bay College, which is affiliated to the University of Durham.

PRODUCTS.—Rubber, gum, palm oil, and palm kernels, benni seed, rice, ground and kola nuts.

SOUTHERN NIGERIA

HISTORY.—The island of Lagos has been under British protection since 1851, when King Kosoko, having refused to co-operate in the suppression of the slave trade, was deposed. In 1861, the island was ceded by his successor, King Docemo, and it became, in 1866, part of the government of the



SOUTHERN NIGERIA—*continued*

West African Settlements. Later, Palma, Leckie, the Kingdom of Appa and parts of the Mahin Ogbo and Jekri territories were added. In 1890,



Sir Walter Egerton, K.C. M.G.  
Commander-in-Chief

Kotonu was exchanged with the French for the kingdom of Pokra. A military expedition in 1892 against the Jebus resulted in the inclusion in the protectorate of a portion of their country and the opening up of an important trade route to the interior. In 1899, Ikorodu was ceded and the protectorate extended to the boundaries of Northern Nigeria. It was constituted the colony of Southern Nigeria by Royal Letters Patent, in 1906.

DATE OF ANNEXATION.—1861.

AREA.—77,260 square miles.

CLIMATE.—Unhealthy for Europeans; there are four seasons: the wet, the dry, and two tornado seasons. Mean temperature 80·5° F.

POPULATION. — Approximately, six millions; Europeans, 1120.

CAPITAL.—Lagos.

GOVERNMENT.—Governor, assisted by Executive and Legislative Councils.

LAWS AND CUSTOMS.—There is a Supreme Court for the whole colony, presided over by the Chief Justice; the laws in force have been codified. Native law is administered when not incompatible with any statute nor repugnant to natural justice. There is a superintendent of native affairs at Abeokuta.

RACES.—Europeans, Jejis, Yorubas, and Benins (or Benis).

DEVELOPMENT.—Railways, steam tramways, telegraph and telephone systems have been instituted. Rubber, cocoa and cotton planting are being actively developed.

RELIGION. — Paganism, but Christianity is making progress.



SOUTHERN NIGERIA—*continued*

LANGUAGES.—(Native) Yoruba, Hausa, Ibo.

EDUCATION.—Government has instituted a system of primary and secondary schools. There are also grammar and high schools.

PRODUCTS.—Palm oil and kernels, ivory, gum-copal, rubber, coffee, cocoa, cotton, hides and fruit.

NORTHERN NIGERIA

HISTORY.—British traders visited the Niger and adjacent rivers and creeks known as the Oil Rivers in the 17th century, and made successful settlements during the following century. Early in the 19th century, Mungo Park traced the course of the Upper Niger from Bamako to Boussa. In 1852, McGregor Laird established stations and endeavoured to bring the country under British influence. Largely owing to the exertions of Sir George Goldie, who visited the Niger in 1877, the National African Company was formed to take over local mercantile interests and secure a charter. This company, afterwards re-organised as the Royal Niger Company, raised a military force and extended the sphere of influence, successfully resisting the attacks of the Fulah tribes and actively discouraging the slave trade. In 1895 the rights and powers of the Company were transferred to the crown, and in 1900 the whole of Northern Nigeria was constituted a British Protectorate.

DATE OF ANNEXATION.—1895.

AREA.—258,000 square miles.

CLIMATE.—Fairly healthy in the inland regions.

POPULATION.—Estimated at 8,000,000.

CHIEF TOWN.—Kamo; centre of administration, Zungeru.

GOVERNMENT.—A Governor and Commander-in-Chief controls the Protectorate, which is divided into provinces, each under the supervision of a resident.



NORTHERN NIGERIA—*continued*

**LAW AND CUSTOMS.**—There is a supreme court, presided over by the Chief Justice, also provincial and native courts, under the supervision of residents.



SIR H. HESKETH BELL, K.C.M.G.  
Governor  
and Commander in Chief

**RACES.**—Negroes of the Haussa, Fulah and other tribes.

**DEVELOPMENT.**—A railway exists from Barijuks to Zungeru and another is being constructed from Baro to Kano, a distance of 400 miles.

**RELIGION.**—Mohammedanism is widely diffused, and in some parts Paganism. Protestant and Catholic missions are at work.

**LANGUAGE.**—Principal native language is Hansa.

**EDUCATION.**—Projects are under consideration for the formation of a comprehensive school system.

**PRODUCTS.**—Cotton, indigo, rubber, hides, ivory and minerals.

BRITISH EAST AND CENTRAL AFRICA

THE SOMALILAND PROTECTORATE

**HISTORY.**—A Protectorate was established over the tribes on the Somali coast in 1884. It was administered till 1898 by the Resident at Aden as a dependency of the Government of India. In 1901, Captain Swayne led a successful expedition against the fanatical Somali leader the Mullah Mohammed Abdullah. Hostilities were continued until 1904, when the dervishes were finally defeated by British and native troops under Sir C. E. Egerton at the battle of Jidballi. In the following year, an agreement was concluded whereby peace was declared between the dervishes and the neighbouring tribes.



SOMALILAND—*continued*

DATE OF ANNEXATION.—1884.

AREA.—About 68,000 square miles.

CLIMATE.—Intensely hot and dry; there is a great desert in the south known as the Haud.

POPULATION.—300,000.

CHIEF TOWN.—Berbera.

GOVERNMENT.—By a Commissioner appointed by the Colonial Officer.

LAWS AND CUSTOMS.—The people are nomadic in habits, being chiefly engaged in hunting and cattle herding.

COMMISSIONER AND COMMANDER-IN-CHIEF.—Brig.-Gen. W. H. Manning, K.C.M.G., C.B.

RACES.—The Somalis are regarded as consisting of mingled arab and negro grafts on the original Hamitic stock.

RELIGION.—Mohammedan.

LANGUAGE.—Somâl is a language whose structure and vocabulary are essentially Hamitic with affinities in the Galla and Dankali dialects, spoken by neighbouring tribes. It has no written standard, and but little in the way of oral literature, save a few proverbs, brief stories and songs.

PRODUCTS.—Skins and hides, ostrich feathers and gum.

THE EAST AFRICA PROTECTORATE

HISTORY.—The East Africa Protectorate extends from German East Africa to Abyssinia, and as far inland as the borders of Uganda. The original concession was made to a company called the British East Africa Company, but the territory was transferred, in 1895, to the British Government, and in 1905 was placed under the supervision of the Colonial Office.

DATE OF ANNEXATION.—1895.

AREA.—Estimated to be 200,000 square miles.

CLIMATE.—Fairly healthy for the tropics; the highlands or central plateaux have a temperate climate; mean average temperature 78° F.



EAST AFRICA PROTECTORATE—*continued*

POPULATION.—Estimated at 4,000,000.

CAPITAL.—Mombasa.



Sir E. P. C. Girouard  
K.C.M.G., Governor and  
Commander-in-Chief.

GOVERNMENT.—By a Governor and Commander-in-Chief assisted by Legislative and Executive Councils.

LAWS AND CUSTOMS.—The Indian Codes are followed as much as possible; the High Court is situated at Mombasa.

RACES.—A few Europeans and Eurasians; Asiatics. On the coast Arabs and Swahilis predominate; farther inland Bantu and non-Bantu tribes, such as the Masai, the Somalis and the Gallas.

DEVELOPMENT. — The Uganda railway connects Mombasa with Lake Victoria Nyanza. Agriculture is flourishing in the highlands.

RELIGION.—Paganism is prevalent, but Mohammedanism has made great progress. There are many Christian mission stations.

LANGUAGES.—Swahili, Sōga, Kikūyu.

EDUCATION.—Elementary schools are established at the mission stations.

PRODUCTS.—Ivory, grain, rubber, fibre and timber.

THE UGANDA PROTECTORATE

HISTORY.—This fertile region extending along the north-west shore of the Victoria Nyanza, and called by Stanley "The Pearl of Africa," was first visited by Speke and Grant in 1862. At the request of King Mtesa, English Protestant missionaries settled in the country in 1877, but Mtesa's son and successor, Mwanga, persecuted the Christians, and Bishop Hannington was murdered at his instigation in 1855. By the Anglo-German agreement of 1887, Uganda was recog-



UGANDA PROTECTORATE—*continued*

nised as being within the British sphere, and a protectorate was proclaimed in 1894, when the Government took over the administrative functions of the British East Africa Company.



Fredk. J. Jackson, Esq., C.B.  
C.M.G., Governor and  
Commander-in-Chief

DATE OF ANNEXATION.—1894.

AREA.—117,681 square miles.

CLIMATE.—Mild; average maximum temperature  $78.2^{\circ}$ ; minimum  $66.9^{\circ}$  F.

POPULATION.—3,240,000.

CAPITAL.—Mengo; headquarters of British administration, Entebbe.

GOVERNMENT.—The Governor and Commander-in-Chief exercises general control; there is also a native king, or “Kabaka,” H. H. Daudi Chua, and the native kings

and chiefs are encouraged to govern their own subjects.

LAWS AND CUSTOMS.—There is a High Court for the Protectorate, with an Appeal Court at Zanzibar; the native king is at present a minor, and is under a regency of three chiefs; there is also a native council of 80 chiefs called the Lukiko.

RACES.—The Waganda.

DEVELOPMENT.—The railway runs from Mombasa on the coast, to Port Florence, on the Victoria Nyanza, a distance of 584 miles.

RELIGION.—Christianity has to a large extent replaced the primitive paganism of the natives.

LANGUAGE.—Bantu.

EDUCATION.—There are schools in connection with the various missions.

PRODUCTS.—Ivory, skins, chillies, cotton, rubber, ground nuts and sugar.



## NYASALAND PROTECTORATE

**HISTORY.**—This territory was first opened up to British influence by Dr. Livingstone in 1859. In 1889 an applica-



Sir W. H. Manning, K.C.M.G.  
C.B., Governor and  
Commander-in-Chief

tion was made for a charter by the British South Africa Company, and an expedition under Major Pinto, was despatched to the Upper Zambesi and Lower Loangwa. In the same year Sir H. H. Johnston arrived at Mozambique as H.B.M. Consul, and, travelling into the interior, arranged important treaties with the native chiefs of the Nyasa region. The Anglo-Portuguese convention of 1891 ratified the work of Sir H. H. Johnston, Sir Alfred Sharpe, and other pioneers of British Central Africa. Troubles with Arab slave traders and hostile tribes resulted in three gunboats being placed upon the Lake Nyasa.

**DATE OF ANNEXATION.**—1891.

**AREA.**—43,608 square miles.

**CLIMATE.**—Tropical; temperature reaches 120° F. in the summer, but the Shiré highlands are cooler.

**POPULATION.**—948,276.

**CHIEF TOWNS.**—Blantyre, Zomba (headquarters of the Government).

**GOVERNMENT.**—By a Governor and Commander-in-Chief, assisted by an executive and a legislative council.

**LAWS AND CUSTOMS.**—Local ordinances and such British Acts as are of general application. There is a High Court and also a Court of Admiralty.

**RACES.**—Europeans, Indians and natives (Arabs, Wahengas, Yaos).

**DEVELOPMENT.**—A railway has been opened up, and a telegraph line connects the Protectorate with Cape Town. At Zomba a system of official telephones has been installed.

**LANGUAGES.**—Nyanja, Nyasa and Yao.

**EDUCATION.**—There are 839 schools, with 75 European teachers, and ten Christian missions are at work.

**PRODUCTS.**—Ivory, tobacco, india-rubber, oil seeds, coffee, wheat and rice. Merino sheep thrive well.



## MAURITIUS

**HISTORY.**—An island in the Indian Ocean, 500 miles east of Madagascar. It was uninhabited when discovered, in



Sir Cavendish Boyle,  
Governor

1507, by Mascarenhas. The Portuguese held it till 1598, when it passed to the Dutch, who named it Mauritius, after their Prince Maurice, but abandoned it in 1712. A French Governor Mahé de Labourdonnais laid the foundation of the prosperity of the colony by the introduction of the sugar cane (1735-1746).

The island was captured by the English during the Napoleonic wars, and its possession confirmed by the Treaty of Paris, 1814. Among the dependencies of the colony are Rodrigues, the Oil Islands, and the St. Brandon group,

with a total area of 172 square miles, and a population of 4,859.

**DATE OF ANNEXATION.**—1810.

**AREA.**—705 square miles.

**CLIMATE.**—Hot, but not unhealthy, except in a few low-lying districts. Mean temperature 78° F.

**POPULATION.**—375,385.

**CAPITAL.**—Port Louis.

**GOVERNMENT.**—Administered by a Governor, aided by executive and legislative councils.

**LAWS AND CUSTOMS.**—The law is based upon the code Napoléon and other French laws, modified by colonial ordinances.

**RACES.**—There are many residents of French descent; also negroes, Malagasy, Cingalese, Malays and Chinese, but the greater part of the population consists of Indian coolies.

**DEVELOPMENT.**—Railways, tramways, telegraph and telephone systems exist. The capital is strongly fortified.

**RELIGION.**—Christian denominations, of which the Roman Catholic is the chief. Hinduism and Mohammedanism.

**LANGUAGE.**—French is spoken all over the island, English and French in the Council, and English in the Courts of Justice.

**EDUCATION.**—There are government elementary and secondary schools.

**PRODUCTS.**—Sugar, rum, vanilla, aloe fibres and coconut oil.



## THE SEYCHELLES

HISTORY.—A group of eighty-nine islands in the Indian Ocean, situated about 935 miles north of Mauritius. Their



W. E. Davison, Esq., C.M.G.  
Governor

position was first defined in 1743, when Labourdonnais was Governor of Mauritius and M. Picault took possession of them in the name of the King of France. Later the group was named the Seychelles in honour of the Vicomte Moreau de Seychelles, a Minister of Louis XV. During the war of the French revolution Mahé was captured by Captain Newcombe, and, in 1810, was formally taken possession of by the appointment of an Agent. In 1903 the Seychelles became a separate crown colony.

DATE OF ANNEXATION.—1810.

AREA.—155 square miles.

CLIMATE.—Tropical but healthy, temperature 70° to 93° F.

POPULATION.—22,409.

CAPITAL.—Victoria.

GOVERNMENT.—The government is vested in the Governor, assisted by an executive and a legislative council. The Governor is president of both Councils.

LAWS AND CUSTOMS.—Similar to those of Mauritius.

RACES.—French Creoles, Negroes, Coolies.

DEVELOPMENT.—There is a good road system in Mahé, and further road-making is in progress in other islands.

RELIGION.—Roman Catholic.

LANGUAGE.—English and French.

EDUCATION.—There are 24 Roman Catholic and Church of England primary schools, and a Government school (the Victoria School) where education of a higher class is provided.

PRODUCTS.—Cocoanuts, vanilla and cacao.

## ASCENSION

HISTORY.—A solitary island in the middle of the South Atlantic, 685 miles north-west of St. Helena. Said to have received its name from having been discovered by a



ASCENSION—*continued*

Portuguese explorer on Ascension Day, 1501. Ascension island was first occupied by the British in 1815, when Napoleon was at St. Helena; it is now used as a sanatorium.



Captain G. Carpenter, R.M.L.I.  
Officer in Charge

DATE OF ANNEXATION.—1815.

AREA.—38 square miles.

CLIMATE.—Dry and salubrious up to 1,800 feet, but above that height to its limit it is damp and foggy.

POPULATION.—266.

GARRISON STATION. — Georgetown.

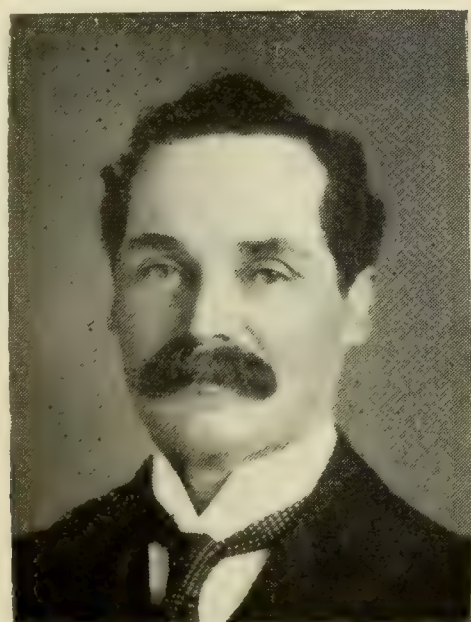
GOVERNMENT.—The island of Ascension is rated on the books of the Admiralty as a warship.

RACES.—The inhabitants consist of seamen, marines, officers and their families and Kroomen.

PRODUCTS.—Turtles, turtle eggs, fruit and vegetables.

FALKLAND ISLANDS

HISTORY.—East Falkland, West Falkland, and about 100 small islands are situated in the south Atlantic Ocean some 480 miles north-east of Cape Horn. They were discovered by Davis in 1592, and visited by Hawkins two years later.



William Lamond Allardyce  
Esq., C.M.G., Governor

In 1764, the islands were taken possession of by France, but the small colony settled by Bourgainville, on E. Falkland, was brought out by the Spaniards. The British maintained a settlement with some interruption from 1767 to 1774, but after that date no formal occupation was made until 1832, when the Government took possession of the islands for the protection of the whale fishery.

DATE OF ANNEXATION.—1832.



FALKLAND ISLANDS—*continued*

AREA.—6,500 square miles.

CLIMATE.—Temperature 20° to 50° F. in winter, 40° to 65° F. in summer.

POPULATION.—2,323.

CHIEF TOWN.—Port Stanley.

GOVERNMENT.—Is vested in a Governor, aided by an executive and a legislative council.

RELIGION.—There are three places of worship (one Church of England, one Roman Catholic, and one Baptist).

LANGUAGE.—English.

EDUCATION.—Compulsory Government, Roman Catholic and other schools.

PRODUCTS.—Wool, hides and skins and tallow.

ST. HELENA

HISTORY.—A lonely island in the Atlantic, 1,200 miles from the west coast of Africa. It was discovered by the Portuguese in 1502, and taken possession of by the British East India Company in 1651.

Napoleon Bonaparte was confined to this island from 1815 till his death in 1821.

DATE OF ANNEXATION.—1651.

AREA.—47 square miles.

CLIMATE.—Salubrious. Even temperature.

POPULATION.—3,577.

CAPITAL.—Jamestown.

GOVERNMENT.—Administered by a Governor, with the aid of an executive council. The Governor alone makes ordinances, there being no legislative council, put power is reserved to legislate by Order of His Majesty in Council.

LAWS AND CUSTOMS.—British law prevails and is administered by a Judge of the Summary Court and Police Magistrate.

RACES.—British and Negroes.

DEVELOPMENT.—Connected by cable with Cape Town, and with St. Vincent.

RELIGION.—There is an Anglican Bishop.

LANGUAGE.—English.

EDUCATION.—There are nine schools receiving a government grant.

PRODUCTS.—Flax and other agricultural produce and fish.



Lieut. Col. Sir E. L. Gellway  
K.C.M.G.  
Governor



THE BRITISH EMPIRE  
IN  
NORTH AND SOUTH AMERICA





OTTAWA  
Federal Capital of Canada



## THE DOMINION OF CANADA

The vast territory extending for 4000 miles from east to west across the upper half of the North American continent, from St. Lawrence and Labrador to British Columbia and the Alaskan frontier, presents the most remarkable spectacle of successful colonisation which the world affords. Canada has become the greatest of Britannia's daughter States, great alike in the natural resources of the country and in the character of her people. The name Canada is probably derived from an Indian word *Kannatha*, meaning village, but understood by the first French settlers to apply to the country at large. Its eastern shores were discovered by Sebastian Cabot in 1497. It was in 1534 that Jacques Cartier landed near Gaspé, but little was done by way of settlement till 1608, when Champlain founded Quebec, and explored the St. Lawrence river.

From this time till 1763, the greater part of the country, excluding Hudson Bay Territory, Nova Scotia and Newfoundland, was French territory, but after a prolonged struggle, Quebec was captured by General Wolfe in 1759, and four years later Canada was ceded to the British by the Treaty of Paris.

The territory thus brought under the British flag is almost as large as the continent of Europe, and contains within itself all kinds of climate, all sorts of natural productions, vast mineral wealth, and an enormous area of fertile land destined to be the future granary of the world. South of the latitude of St. Petersburg there are in Canadian territory 2,000,000 square miles of land capable of cultivation, of which fully one-half will produce every crop that is grown in Great Britain.

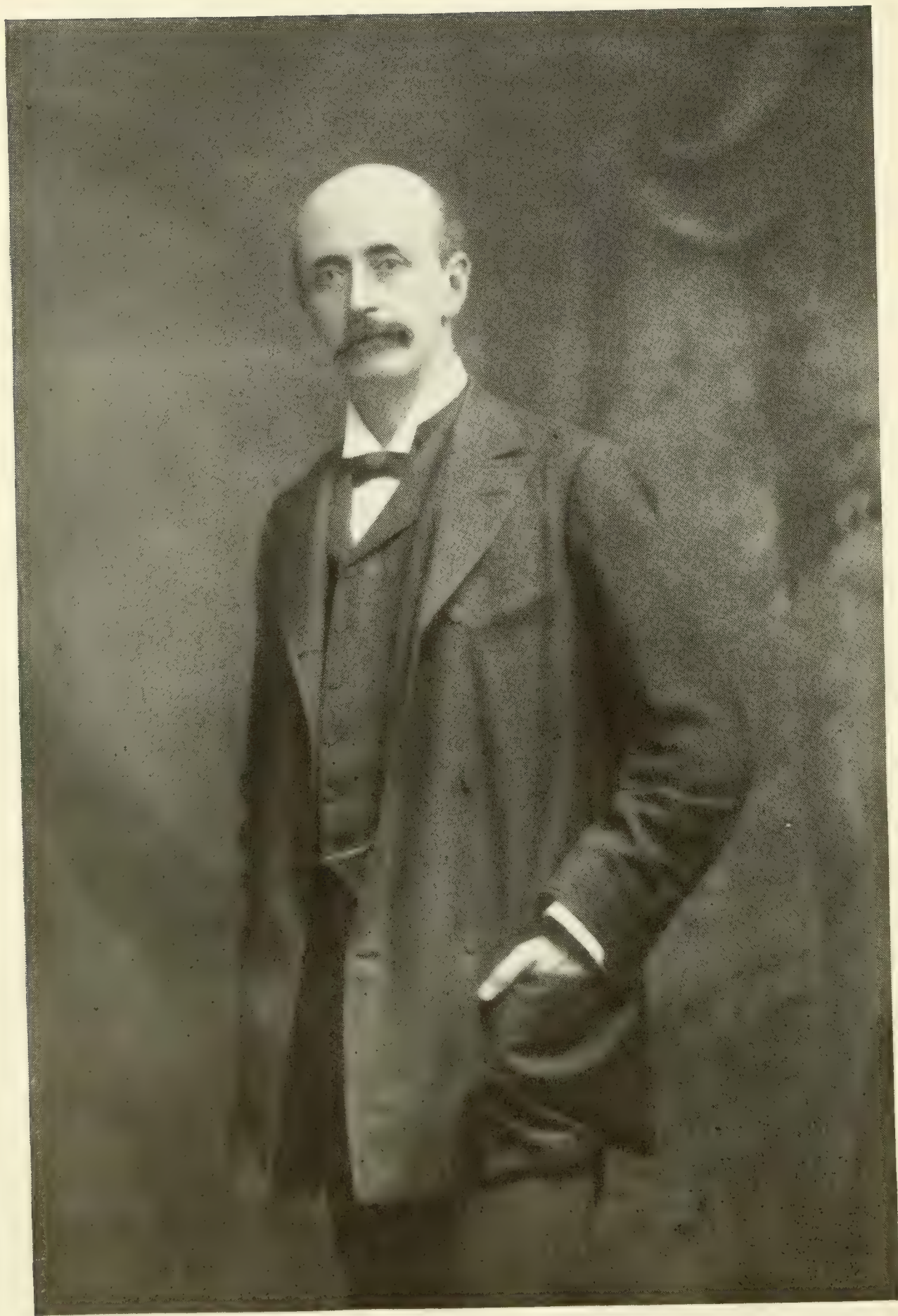
The world's  
granary

The most striking physical features of Canada are the Rocky Mountains, the Laurentian Range, and the chain of immense fresh water lakes and mighty rivers which intersect the plains and valleys of this wonderful land.

To the far north all the great Arctic Islands, except Greenland, belong to Canada.

Vast forests, which supply timber to all parts of the world, and constitute an important part of the natural wealth of the country, are found in the eastern provinces,





THE RIGHT HON. EARL GREY  
Governor-General of the Dominion of Canada



in British Columbia, and in the great north-west territories beyond Saskatchewan.

The climate is favourable to the white race and to agriculture. The air is dry, bracing and exhilarating. The cold in winter, and the heat in summer, are greater than in England, but the conditions for the rapid growth of cereals, namely, warm sunshine and a sufficiency of rain, are present, and combine to produce abundant crops throughout the great wheat-growing belt.

Among the immense mineral deposits which appear practically inexhaustible are coal, iron, nickel, copper and gold.

In 1867, the provinces of Ontario, Quebec, Nova Scotia and New Brunswick were united under one federal government; in 1870, Manitoba and the north-east territories were added, British Columbia joined the Confederation in 1871, and Prince Edward Island in 1873. Territory not comprised within any province, for instance, the north-east territory and the Arctic Islands, is administered by the Minister of the Interior.

AREA.—3,745,574 square miles.

POPULATION.—(In 1909) 7,184,000.

CAPITAL.—Ottawa.

GOVERNMENT.—The political institutions of Canada are modelled upon those of the Mother Country, there is a Federal Parliament with a Senate whose members are nominated for life, a House of Commons consisting of 221 members elected quinquennially by ballot.

The Governor, representing the King, is assisted by a Privy Council chosen by himself. In each of the provinces there is a Lieutenant-Governor appointed by the Governor-General in Council.

LAWS AND CUSTOMS.—The Dominion Parliament has executive and legislative power in all matters, including finance, trade, postal service, currency, banking, navigation, defence, except those specifically delegated to the Provincial legislatures.

RACES. — Canadians of British and French descent, Germans, North American Indians.

DEVELOPMENT. — Means of transit have been greatly developed in recent years. In 1909 there were sixty-five railway lines in the Dominion, with a total mileage of 24,104. In addition to the magnificent natural waterways provided by the lakes and rivers, a great system of canals has been constructed.

RELIGION. — Roman Catholic, Methodist, Presbyterian, Church of England, Baptist.





THE RT. HON. SIR WILFRID LAURIER  
Premier and President of the Privy Council of Canada



## ONTARIO

HISTORY.—After the cession of Canada to Great Britain by the Treaty of Paris, 1763, Ontario was governed by military authority for several



Hon. Sir J. P. Whitney,  
Premier

years. In 1791 an act was passed dividing the country into two provinces, Upper Canada (now Ontario), and Lower Canada (Quebec). Ontario was largely founded by the immigration of Loyalists from the United States after the War of Independence. Some dissatisfaction arose owing to the governors and executive councils not possessing the confidence of the provincial assemblies. This culminated in a rebellion in 1837-38. Lord

Durham having been sent out from England with special powers, he recommended a union of the provinces and foreshadowed the larger confederation which has since been adopted.

DATE OF ANNEXATION.—1763.

AREA.—220,000 square miles.

CLIMATE.—Dry, bracing and very healthy, although the range of temperature is very great. Mean temperature at Toronto is 45° F.

POPULATION.—2,182,947.

CAPITAL.—(Of the Dominion) Ottawa. (Of the Province) Toronto.

GOVERNMENT.—Is vested in a Lieutenant-Governor and legislative assembly composed of 106 members, elected for four years. The executive council consists of eleven members, eight of whom act as the ministry of the Province, and three are without portfolios.

LAWS AND CUSTOMS.—The law has its basis in British Common Law, with such modifications as have been introduced by the Federal and Provincial Legislatures.



ONTARIO—*continued*

LIEUTENANT-GOVERNOR.—Col. John Morrison Gibson, K.C., LL.D.

RACES.—Mainly of British descent.

DEVELOPMENT.—There are between 6000 and 7000 miles of railway in the province. Farming, mining, fisheries and manufactures are all very important and successful industries.

RELIGION.—Methodist, Presbyterian, Roman Catholic, Church of England and Baptist.

LANGUAGE.—English.

EDUCATION.—Is under the control of the Minister of Education. There are 6,418 elementary and high schools in the province, and a fine university at Toronto. The Ontario Agricultural College at Guelph supplies a general education, together with a technical training in agriculture.

PRODUCTS.—Wheat, barley, oats, rye, peas, corn, cheese, butter and fruit.

QUEBEC

HISTORY.—Quebec (formerly called Lower Canada) lies to the east of Ontario on either side of the St. Lawrence River. It is the historic home of French Canada, and 80 per cent. of the present inhabitants are of French descent. The early settlers, missionaries and fur traders who landed in 1608 suffered many hardships and were frequently engaged in conflicts with Indian tribes. From 1629 to 1632, Quebec was in English possession, having been captured by David Kirk.

When Quebec was finally ceded to the British in 1763, religious freedom for both Protestants and Roman Catholics was secured, and at the same time the rights of the Catholic clergy recognised. In 1791, a constitution was established for Lower Canada, consisting of a legislative council and house of assembly. When the Dominion of Canada was formed, these bodies were merged in the Federal Parliament. Quebec sends 24 members to the Federal Senate and 65 to the House of Commons.

QUEBEC—*continued*

DATE OF ANNEXATION.—1763.

AREA.—346,928 square miles.

POPULATION.—1,620,974.

CLIMATE.—Dry, bracing, and very healthy; mean temperature at Montreal 42°F.

CAPITAL.—Quebec.

GOVERNMENT OF THE PROVINCE.—Is vested in a Lieutenant-Governor and a Legislative Council consisting of 24 members and a Legislative Assembly of 74 members

LAWS AND CUSTOMS.—Based on British Common Law.

LIEUTENANT - GOVERNOR. — Sir François Langelier.

RACES.—Canadians, chiefly of French descent.

DEVELOPMENT.—Far advanced; Montreal, a splendid city on the St. Lawrence, is the chief seaport and most populous town in the Dominion.

RELIGION. — Roman Catholic, Church of England, Presbyterian, Methodist and Baptist.

LANGUAGE.—French, English.

EDUCATION.—Is under a Superintendent of Public Instruction assisted by a council and 35 members. There were, in 1908, 6,511 schools including high schools. The Catholic University of Laval is situated in the City of Quebec. There are also two protestant universities, McGill College, Montreal, and Bishop's College, Lennoxville.

PRODUCTS.—Beside the immensely valuable produce of its farms, forests, mines, and fisheries, Quebec is a great manufacturing country, its industries representing 47 per cent. of the total capital invested in manufactures throughout Canada.



Hon. Sir Lomer Gouin  
Premier and Attorney-General



## NOVA SCOTIA

HISTORY.—A well-watered province, consisting of a long narrow peninsular, and the island of Cape Breton.

It was discovered by Cabot in 1497, and partly colonised by the French, who called it Acadie. It was ceded to the British Crown in 1714, and entered the Confederation of the Dominion of Canada in 1867.

DATE OF ANNEXATION.—1714.

AREA.—20,907 square miles.

CLIMATE.—Temperate.

POPULATION.—500,000.

CAPITAL.—Halifax.

GOVERNMENT.—By a Lieutenant-Governor, executive and legislative councils.

LIEUTENANT-GOVERNOR.—Hon. J. D. McGregor.

PREMIER AND PROVINCIAL SECRETARY.—Hon. George H. Murray.

RACES.—British; many loyalist immigrants settled in Nova Scotia after the American War of Independence.

DEVELOPMENT.—Coal mining and extensive steel and iron works are carried on; Halifax has a magnificent harbour, and is one of the terminals of the inter-colonial railway.

RELIGION.—Protestant.

LANGUAGE.—English.

EDUCATION.—Compulsory, 2,465 schools, also a technical college and schools.

PRODUCTS.—Agricultural produce, fish, apples; minerals and manufactures.

## NEW BRUNSWICK

HISTORY.—A province nearly as large as Scotland, which lies between the Gulf of St. Lawrence and the State of Maine. It was part of the antient French province of Acadie, and was ceded to England by the Treaty of Utrecht in 1713. First colonised by British subjects in 1761, and in 1763 by disbanded troops from New England.

DATE OF ANNEXATION.—1713.

AREA.—27,105 square miles.

NEW BRUNSWICK—*continued*

CLIMATE.—Healthy, mean temperature  $41^{\circ}$  F.

POPULATION.—331,120.

CAPITAL.—Fredericton, but the largest commercial centre is St. John.

GOVERNMENT.—By a Lieutenant-Governor and executive and legislative councils.

LAWS AND CUSTOMS.—New Brunswick is represented in the Canadian Senate by ten members, and sends thirteen members to the House of Commons.

LIEUTENANT-GOVERNOR.—Hon. L. J. Tweedie.

PREMIER AND ATTORNEY-GENERAL.—Hon. J. D. Hazen.

RACES.—Chiefly of British descent.

DEVELOPMENT.—A great portion of the province is covered with forests of pine, spruce, hemlock, and other timber.

RELIGION.—Protestant.

LANGUAGE.—English.

EDUCATION.—1,820 schools; university at Fredericton, also at Sackville and Memramcook.

PRODUCTS.—Coal, copper, iron, mineral oil; also wheat, Indian corn and other cereals.

MANITOBA

HISTORY.—The Earl of Selkirk brought a party of Highland settlers to this region in 1812. It was called the Red River Settlement until 1868, and was part of the territory placed under the control of the Hudson Bay Company. After the Company had surrendered their charter to the Crown, an insurrection, headed by Riel, occurred in the colony, but was suppressed by Sir Garnet Wolseley.

During the last few years Manitoba has received a constant stream of immigrants from Europe and the United States, and bids fair to become the greatest wheat-growing province of Canada. Its soil appears inexhaustibly rich and fertile, and produces enormous crops.

DATE OF ANNEXATION.—1868.

AREA.—72,864 square miles.



MANITOBA—*continued*

CLIMATE.—Cold but healthy, mean temperature 33° F.

POPULATION.—360,590.

CAPITAL.—Winnipeg.

GOVERNMENT.—By a Lieutenant-Governor, a ministry and legislative assembly.

LIEUTENANT-GOVERNOR.—The Hon. Sir D. H. McMillan, K.C.M.G.

PREMIER.—Hon. R. P. Roblin.

RACES.—Mainly British.

DEVELOPMENT.—There are at present 4,500 miles of railway in the province, all built since 1879.

RELIGION.—Protestant and Catholic.

LANGUAGE.—English.

EDUCATION.—There is a Board of Education controlling 2,014 schools, and a University of Manitoba, with examining and degree conferring powers.

PRODUCTS.—Wheat, horses, cattle, sheep and swine; gold is worked in the east; coal, iron and timber.

BRITISH COLUMBIA

HISTORY.—British Columbia was constituted a Crown Colony in 1858, owing to the large immigration on the discovery of gold in that year.

Vancouver Island was leased to the Hudson Bay Company in 1843, and made a Crown Colony in 1849.

In 1866 the Colonies of British Columbia and Vancouver were united, and in 1871 entered the Canadian Confederation.

AREA.—395,610 square miles.

CLIMATE.—Cold, but healthy.

POPULATION.—260,000.

CAPITAL.—Victoria.

GOVERNMENT.—By a Lieutenant-Governor, a ministry and legislative assembly.

LIEUTENANT - GOVERNOR. — Hon. Thomas William Paterson.

BRITISH COLUMBIA—*continued*

PREMIER.—Hon. Richard MacBride, K.C.

RACES.—In addition to the white population there are about 29,000 Indians, 17,000 Chinese, 16,000 Japanese and 5,000 Hindus.

DEVELOPMENT.—There are 1,750 miles of railway (mainly C.P.R.) in the province. Only one-tenth of the available agricultural and fruit lands have as yet been settled upon, and the coal mining industry is in the early stages.

EDUCATION.—There is a Council of Public Instruction. The schools (numbering in 1908, 422) are free and non-sectarian.

PRODUCTS.—Minerals (chiefly gold, silver, copper and coal); fisheries (salmon, halibut, herrings, whale products and oil); lumber, furs, skins, etc.

SASKATCHEWAN

HISTORY.—In the very centre of Canada, immediately west of Manitoba, lies the great new province of Saskatchewan. It comprises the eastern half of Athabasca and the greater part of the old districts of Assiniboia and Saskatchewan, and was constituted a separate province in 1905.

AREA.—250,000 square miles.

CLIMATE.—Similar to that of Manitoba.

POPULATION.—337,000.

CAPITAL.—Regina.

GOVERNMENT.—By a Lieutenant-Governor, a ministry and a legislative council.

LIEUTENANT-GOVERNOR.—Hon. A. E. Forget.

RACES.—British, North American Indians.

DEVELOPMENT.—It is computed that there are over 150,600,000 acres of land suitable for cultivation and awaiting settlement in Saskatchewan and Alberta. The Canadian Pacific Railway runs through Regina.

ALBERTA

HISTORY.—A new province of Alberta was proclaimed on September 1st, 1905. It lies between Saskatchewan and British Columbia, and formed part of what was formerly called the North-West Territories. It includes the former



ALBERTA—*continued*

district of Alberta, the western half of Athabasca, and a strip of Assiniboia and Saskatchewan.

AREA.—253,000 square miles.

CLIMATE.—The mean temperature is slightly higher than at Winnipeg.

POPULATION.—350,000.

CAPITAL.—Edmonton.

GOVERNMENT.—By a Lieutenant-Governor, a ministry and legislative assembly.

LAWS AND CUSTOMS.—The Dominion Government retains control of the public lands, and pays an annual allowance to the Provincial Government in consideration thereof.

LIEUTENANT-GOVERNOR.—Hon. G. H. V. Bulyea.

PREMIER, TREASURER AND MINISTER OF PUBLIC WORKS.—Hon. Arthur Lewis Sefton.

RACES.—British, and immigrants of other nationalities are rapidly taking up lands; Indians.

DEVELOPMENT.—A branch of the C.P.R. runs through the province, which is becoming a great wheat-growing territory, the area in crops in 1909 was 1,262,644 acres.

RELIGION.—Protestant.

LANGUAGE.—English.

EDUCATION.—The Attorney-General is also the Minister of Education.

PRODUCTS.—Wheat, cattle and dairy produce,

NEWFOUNDLAND

HISTORY.—A large island on the north-east side of the Gulf of St. Lawrence, discovered by John Cabot in 1497. It was visited as early as 1500 by Portuguese, Spanish and French for its fisheries. In 1623, Sir G. Calvert, afterwards Lord Baltimore, established himself in the Peninsula of Avalon, and appointed his son as governor. The French established a station at Placentia about 1620. The sovereignty of the island was acknowledged to belong to Great Britain by the Treaty of Utrecht in 1713. Disputes between the English and French fishermen were finally settled by the Anglo-French Convention of 1904.

NEWFOUNDLAND—*continued*

Labrador on the mainland, from Hudson's Strait to Blanc Sablon, is included in the colony of Newfoundland.



Hon. Sir E. P. Morris  
K.C.M.G., Premier

DATE OF ANNEXATION.—1713.

AREA.—42,734 square miles.

CLIMATE.—Salubrious. The thermometer seldom falls below zero in the winter, and in the summer ranges from 70° to 80° F. in the shade.

POPULATION.—230,000.

CAPITAL.—St. Johns.

GOVERNMENT.—Is administered by a Governor, executive and legislative councils, and a House of Assembly.

GOVERNOR.—Sir Ralph Champneys Williams, K.C.M.G.

RACES.—British, also a few residents of French extraction.

DEVELOPMENT.—638 miles of railway have opened up large tracts of rich agricultural land.

RELIGION.—Church of England, Roman Catholic, Methodist, Presbyterian and other denominations.

EDUCATION.—There is a government system of primary education with 918 schools. Grants are also made in aid of secondary and technical schools.

PRODUCTS.—Fish, potatoes, turnips, barley, oats, iron, copper and coal.

JAMAICA

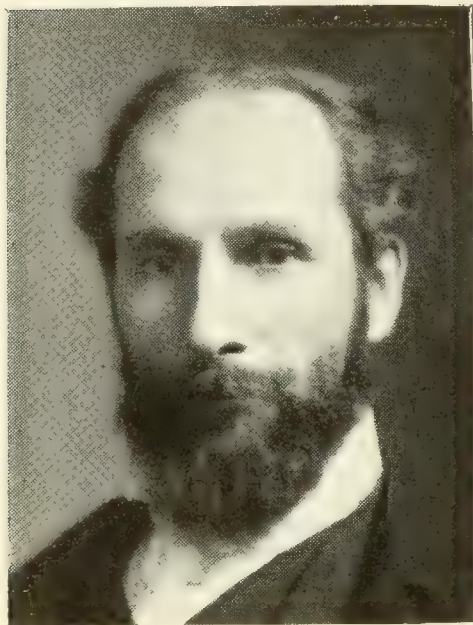
HISTORY.—The largest of the British West Indies, Jamaica was discovered by Columbus in 1494. He called it St. Jago, after the patron Saint of Spain, but its native name (Xaymaca, well watered) has survived.

The island remained in the possession of the Spaniards for 161 years, until captured by an English force sent by Cromwell in 1655. It remained under military rule for some years, but in 1660 a civil government was established.



JAMAICA—*continued*

Port Royal became the headquarters of the buccaneers. At the abolition of slavery in 1807, there were 323,827 slaves in the colony.



Sir Sydney Olivier, K.C.M.G.  
Captain, General and  
Governor-in-Chief

DATE OF ANNEXATION.—1655.

AREA.—4,207 square miles.

CLIMATE. — Mean temperature 78·1° F. The island has suffered terrible disasters from hurricanes and earthquakes.

CAPITAL.—Kingston.

GOVERNMENT.—The Governor is assisted by a Privy Council. The legislative council consists of the Governor, the senior military officer, the colonial secretary, the attorney-general, the director of public works, the collector-general and others.

LAWS AND CUSTOMS.—British law, as modified by local ordinances, is administered by the High Court of Justice and the Petty Sessions of Magistrates throughout the island. Elective parochial boards in Kingston, and fourteen other parishes have jurisdiction over roads, markets, sanitation, etc.

RACES.—Chiefly Negroes.

DEVELOPMENT.—There are 184 miles of railway; a large loan was granted by the home exchequer for rebuilding property after the disastrous earthquake of 1907.

RELIGION.—There is no established church. The religious denominations represented are: Church of England, Wesleyan, Methodist, Baptist, Presbyterian, Roman Catholic, etc.

LANGUAGE.—English.

EDUCATION.—There are public elementary schools receiving a government grant, government training colleges, high, secondary and industrial schools.

PRODUCTS.—Sugar, rum, coffee, fruit, maize, Indian corn.

## THE BAHAMAS

**HISTORY.**—A chain of islands 600 miles in length, between Cuba and Florida. San Salvador was the first land discovered by Columbus on his



Sir William Grey-Wilson,  
K.C.M.G., Governor and  
Commander-in-Chief

voyage in 1492. The Spaniards took possession of the Bahamas and transported the aboriginal Caribs to Cuba to work the mines. In the seventeenth century a few settlers from the Bermudas, came to Eleuthera and New Providence. Charles II. granted the islands to a company, but no regular system of government was set up, and in 1703 the French and Spaniards annihilated the settlement. For some years the islands became the haunt of pirates, and were surrendered to Spain in 1781, but, at the

conclusion of the war, were again annexed by Great Britain and their possession confirmed by the Peace of Versailles.

**DATE OF ANNEXATION.**—1783.

**AREA.**—4,466 square miles.

**CLIMATE.**—Salubrious; temperature ranges from 57° to 113° F.

**POPULATION.**—61,277.

**CAPITAL.**—Nassau.

**GOVERNMENT.**—Is vested in a Governor, aided by an executive council, a legislative council, and a representative assembly.

**LAWS AND CUSTOMS.**—British law, as modified by local ordinances is administered by a Chief Justice and two stipendiary magistrates.

**RACES.**—The majority of the population is of Negro race.

**DEVELOPMENT.**—There are no railways (except at Abaco in connection with the lumber industry). New Providence has plenty of good roads. The islands are in telegraphic communication with Florida.

**RELIGION.**—Protestant and Roman Catholic.



THE BAHAMAS—*continued*

LANGUAGE.—English is universally spoken.

EDUCATION.—There are 46 government schools, also Church of England, Roman Catholic and private schools.

PRODUCTS.—Fruit, vegetables, sponges ; mahogany and other hard woods.

THE LEEWARD ISLANDS

HISTORY.—The Leeward Islands form the most northerly group of the Lesser Antilles ; those under the British flag comprise Antigua, Montserrat, St. Kitts, Nevis, Dominica and the Virgin Islands. They were discovered by Columbus on his second voyage in 1493, and have all been colonised from St. Kitts as a centre. An Englishman named Warner commenced tobacco growing in St. Kitts in 1623. Several fierce encounters have taken place between the French and British for the possession of this island. It was captured by the French in 1782, but restored by the Treaty of Versailles, 1783.

AREA.—Antigua, 108 square miles ; St. Christopher (St. Kitts), 68 square miles ; Dominica, 291 square miles ; Montserrat,  $33\frac{1}{2}$  square miles ; the Virgin Islands, 58 square miles.

CLIMATE.—Dry and fairly healthy ; mean temperature  $80^{\circ}$  F.

POPULATION.—129,240.

CAPITAL.—St. John.

CHIEF TOWNS. — Antigua — St. Johns ; St. Kitts — Bosseterre ; Dominica—Roseau ; Montserrat — Plymouth ; the Virgin Islands—Road Town.

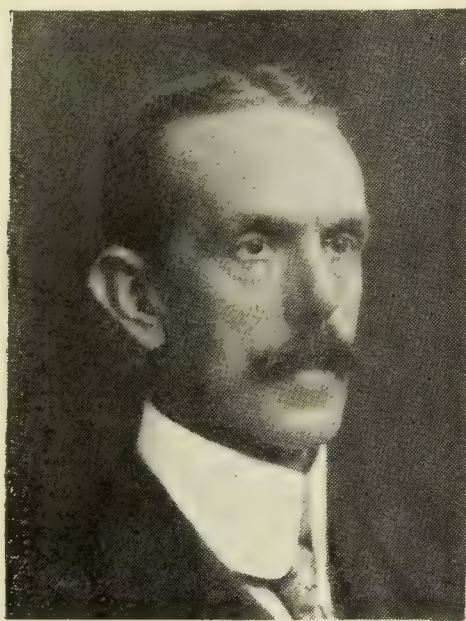
GOVERNMENT. — The Leeward Islands Confederation has representative government with a Governor, executive and federal legislative councils, each presidency retaining its own local constitution.

LAWS AND CUSTOMS.—British law modified by local ordinances. Some acts passed by the Colonial Legislature in the time of William and Mary affecting land tenure anticipated by nearly a century and a half reforms only effected by the home government in 1833.

RACES.—British and Negro.

THE LEEWARD ISLANDS—*continued*

DEVELOPMENT.—There are no railways or internal telegraphs. Two telegraph cables connect Dominica and St. Lucia (viâ Martinique), and two cables connect St. Kitts with Antigua and St. Thomas.



Sir E. B. Sweet-Escott  
K.C.M.G., Governor

RELIGION.—Anglican, Moravian, Wesleyan, and Roman Catholic.

LANGUAGE.—English.

EDUCATION. — There are 144 aided and government primary schools, also grammar and secondary schools.

PRODUCTS. — Sugar and molasses, lime juice, arrowroot, rum, fruit, cocoa and cotton.

## THE WINDWARD ISLANDS

HISTORY.—The southern group of the West Indian islands, known as the Windward Islands, includes Barbados, St. Lucia, St. Vincent, Grenada, The Grenadines, and Tobago. Of these, Barbados has a separate government, and Tobago is now attached for administrative purposes to Trinidad. The remaining three islands with their small dependencies are under one government which has its seat in Grenada.

GRENADA is a mountainous and picturesque island, situated about 96 miles to the north of Trinidad, and 100 miles south-west of Barbados. Discovered by Columbus on August 15, 1498, and named by him Conception, it was left in the undisturbed possession of its aboriginal inhabitants for more than a hundred years, but in 1609 a party of some 208 colonists, sent out by a company of London merchants, landed on the coast.

Their efforts to subdue the wild Caribs were, however, unsuccessful, and the remnant of the band returned to England in the same year. Since then Grenada has had



THE WINDWARD ISLANDS—*continued*

an eventful history, being one of the pawns in the game which, at the commencement of the seventeenth century,



Sir James Hayes Sadler,  
K.C.M.G. Governor and  
Commander-in-Chief

English and French kings, ministers and merchant adventurers began to play, with the New World as their chessboard, and colonial empire as the stake.

Thus Grenada figured among the theoretical possessions of a French "Company of the Islands of America," founded by Cardinal Richelieu, and was also included in a general grant of the "Caribbees," made to the Earl of Carlisle by King Charles I. in 1626. A shareholder in the French company named Du Parquet, bought the hypothetical claims of his company,

and, landing on Grenada with 200 followers, succeeded in persuading the natives to cede the island to him for a few trinkets.

The French occupation which was maintained by a war against the aboriginal Caribs, lasted until 1761, when the islands were captured by Admiral Rodney. Grenada and the Grenadines were formally ceded to Great Britain by the Treaty of Peace signed at Paris two years later. Since then, with the exception of four-and-a-half years during the war of American Independence, when it was taken by the French, the island has remained a British possession.

ST. LUCIA, round which many a fierce fight has raged in the stormy years of West Indian history, is 90 miles W.N.W. of Barbados, and 21 miles S.E. of Martinique. It is covered, to a great extent, with forest and tropical vegetation. Its mountains rise at their highest point to 3,145 feet above the sea level. Port Castries, its capital, is a fine town and a famous coaling depôt.

ST. VINCENT lies about 95 miles west of Barbados. It was secured to Great Britain in 1783, and is more thoroughly English than the other two islands of the group.

THE WINDWARD ISLANDS—*continued*

TOTAL AREA.—524 square miles.

CLIMATE.—Very fine in the dry season, which lasts from December to June.

POPULATION.—78,000.

CHIEF TOWN.—In Grenada—St. George; St. Lucia—Castries; St. Vincent—Kingstown.

GOVERNMENT.—The islands are under one Governor and Commander-in-Chief, but each has its own administrator and separate institutions. Administrator of St. Lucia, E. J. Cameron, Esq., C.M.G.; Administrator of St. Vincent, Hon. C. G. Murray.

LAWS AND CUSTOMS.—Each administration has its own legislature, but there is a Common Court of Appeal, consisting of the Chief Justices of the Islands and of Barbados. The civil law is based upon the old French code.

RACES.—The majority of the inhabitants are of Negro race; a few Caribs still remain in St. Vincent, and there are about 5,000 Indian coolies.

DEVELOPMENT.—There is a small coast railway, 56 miles in length, on St. Vincent, and good roads in Grenada, also telephone and telegraph lines.

RELIGION.—The Roman Catholic faith predominates

LANGUAGE.—English is usually spoken except in Grenada and St. Lucia, where the prevailing language among the peasantry is a French patois.

EDUCATION.—There are 119 elementary schools on the islands, beside government agricultural schools.

PRODUCTS.—(Grenada).—The soil of Grenada is extremely fertile, and cocoa, spices, rubber, cotton, coffee and numerous fruits are grown. The forests are rich in valuable timbers such as bullet wood, mahogany, white cedar and galba. Vanilla and several kinds of gum-bearing trees are indigenous, and along the coasts turtles are caught and exported. (St. Lucia).—Arrowroot, sugar, cocoa, cotton, live stock. (St. Vincent).—The chief products are sugar, molasses, rum, arrowroot, cassava, cocoa, coffee, cotton and spices.



## BARBADOS

HISTORY.—Barbados is said to have received its name from the Portuguese, who found it almost uninhabited, but abounding in bearded fig-trees.



Sir Leslie Probyn  
Governor

The island was nominally taken possession of in 1605 by the British ship "Oliph Blossome," and in 1625 Sir William Courteen, a London merchant, sent out a party of colonists. The island was granted by James I. to the Earl of Marlborough, and afterwards by Charles I. to the Earl of Carlisle in a general grant of all the Caribbee islands.

On the downfall of Charles many royalist families found refuge in Barbados, and Lord Willoughby became Governor, but was banished during the Commonwealth. After the Restoration, the proprietary government was dissolved and the sovereignty of Barbados annexed to the British Crown.

DATE OF ANNEXATION.—1625.

AREA.—166 square miles.

CLIMATE.—The healthiest of the West Indian Islands; temperature varies from 75° to 83° F.

POPULATION.—Estimated at 196,287.

CAPITAL.—Bridgetown.

GOVERNMENT.—Consists of a Governor aided by an executive council and executive committee, a legislative council and a house of assembly.

RACES.—British and Negro.

DEVELOPMENT.—There are 470 miles of roads and 28 miles of railway. A telephone system is in vogue.

RELIGION.—Church of England, Wesleyan, Moravian and Roman Catholic.

LANGUAGE.—English.

EDUCATION.—Liberal provision is made for elementary education and at Harrison's College for higher education.

PRODUCTS.—Sugar, molasses, rum and cotton.

## TRINIDAD AND TOBAGO

HISTORY.—Trinidad is a beautiful island situated about 10° N. of the equator in the southern part of the Caribbean



Sir G. R. Le Hunte  
K.C.M.G., Governor

Sea, and separated from the coast of Venezuela by the Gulf of Paria. It was discovered by Columbus in 1498, at which time it was peopled by several tribes of Indians, the chief being the Arouacks and the Chaimas.

Columbus gave the island the name of Trinidad, from the three sister peaks of Moringa, which rise from it. Prior to this it had borne the Indian name of Iere, or the land of humming birds.

Both the Spanish and French colonised Trinidad, but in 1797 the British, being then at variance with Spain, sent an expedition under Sir Ralph Abercromby and Rear Admiral Harvey to capture the island. For over a hundred years it has been a British colony.

The chief towns are Port of Spain, one of the finest in the West Indies, San Fernando and Princetown.

The soil is remarkably fertile, and owing to the wealth of its natural resources, and the variety of its crops, Trinidad has suffered less than other cane-growing West Indian islands during the last thirty years from the competition of beet sugar.

DATE OF ANNEXATION.—1797.

AREA.—Trinidad, 1,750 square miles. Tobago, 114 square miles.

CLIMATE.—Healthy; mean temperature 78° F.

POPULATION.—(including Tobago), 351,422.

CHIEF TOWN.—Port of Spain.

GOVERNMENT.—Is vested in a Governor, an executive council, and a legislative council.

RACES.—The white population is composed of English, Germans, French and Spanish; there is also a large proportion of East Indians.



TRINIDAD AND TOBAGO—*continued*

DEVELOPMENT.—There are about 80 miles of railways in the island all constructed and worked by the government.

RELIGION.—Protestant and Roman Catholic.

LANGUAGE.—English, a French patois peculiar to the West Indies is spoken and also Spanish.

EDUCATION.—There are numerous elementary and private schools and several colleges.

PRODUCTS.—Its staple product in addition to sugar, rum, and molasses, is cocoa, but cocoanuts, coffee, bananas, oranges, rubber and tobacco are also exported, and the forests of the island abound in trees yielding valuable hardwood timber such as the poui, roble, purple-heart, balata, leopard wood and cyp, some of which have a very fine grain, and are capable of a brilliant polish. There is a remarkable lake of pitch near the village of Le Brea, 110 acres in extent, and containing an apparently inexhaustible supply. Coal has been found in Manzanilla, and increasing attention is being paid to the rich petroleum deposits of Guapo and Guayaguayare in the south and south-east of the island.

## BRITISH GUIANA

HISTORY.—Since the days when Sir Walter Raleigh brought back to the court of Elizabeth the news of the "Wild Coasts" of South America, the region bordering the Atlantic ocean, and immediately to the north of the Lower Amazon Basin has been called "Guyana" or "Guiana."

Of the three colonies, British, Dutch and French Guiana, which constitute the only European possessions on the vast continent of South America, the British is the most westerly, and lies between Venezuela and Dutch Guiana, with its southern borders touching Brazil.

The frontier extends inland from the Atlantic seaboard some 540 miles on the west of the colony, and 300 miles on the eastern side.

Guiana was the Indian name for the country between the Orinoco and the Amazon, probably derived from the root word *wina*, meaning water.

BRITISH GUIANA—*continued*

The coast was sighted by Columbus in 1498, and two years later by Pinçon, but no Spanish voyager seems to have



Sir F. Mitchell Hodgson  
K.C.M.G., Governor

landed on what is now British Guiana. In early maps the country was marked as Cannibalar Terra. Raleigh's book, "The Discoverie of Guiana," aroused great interest, and led to trading voyages to the coast by English, Dutch and French. The Dutch attempted to settle on the Pomeroon as early as in 1580. In 1650 the Governor of Barbados founded a British colony on the Surinam river, and it is a curious historical fact that in 1667, after the war between

England and the Netherlands, this little colony of Surinam was exchanged for what is now New York.

A few white settlers and slaves were living in Guiana at the commencement of the next century, but it was not until 1740, when, at the instigation of Governor Gravesande, the river Essequibo was opened to all nations, and free land and freedom from taxes for ten years offered, that any considerable increase in the number of white residents took place.

In 1781, the country was again captured by the British, who, during a brief occupation, chose a site for a new town near the mouth of the Demerara. This settlement, after being held by the French and Dutch successively, the latter giving it the name of Stabroeck, reverted to the British, and took the name of Georgetown in 1812.

Thereafter the colony has grown and prospered in spite of a slight set back due to economic disturbance on the liberation of the slaves in 1834.

Population and agriculture is chiefly centred on the coast lands which lie between the Pomeroon and the Courantyne.

DATE OF ANNEXATION.—1812.



BRITISH GUIANA—*continued*

AREA.—90,277 square miles.

CLIMATE.—The seasons are divided into dry and wet, the two dry seasons lasting from the middle of February to the end of April and from the middle of August to the end of November. The climate though hot, its temperature ranging from 75° to 95° F., is not unhealthy.

POPULATION.—305,090.

CAPITAL.—Georgetown.

GOVERNMENT.—Consists of a Governor, a Court of Policy and an Executive Council.

LAWS AND CUSTOMS.—The Civil law is modified Roman-Dutch, criminal law is based upon that of Great Britain.

RACES.—About 10,000 aboriginal Indians are resident in the colony, belonging chiefly to the Arawak, Acawoi, Carib and Warau tribes. The population has been recruited by immigrants of various nationalities. Besides British and European settlers there are Africans from Sierra Leone, Madeirans and a few Maltese. Since the immigration of East Indian coolies has been put upon a sound footing, the number of persons in the colony has grown from 100,000 to over 300,000.

DEVELOPMENT.—There is a good net-work of roads and about 100 miles of railway; the rivers and canals also furnish means of transit. Telegraph and telephone systems are established. The area under cultivation amounts to 140,930 acres, of which 69,827 acres are in sugar-cane.

RELIGION.—The Church of England, the Church of Scotland, the Roman Catholic and Wesleyan denominations are represented in the colony.

EDUCATION.—A state-aided system of elementary education is established. There are 223 schools and a government college which is situated in Georgetown.

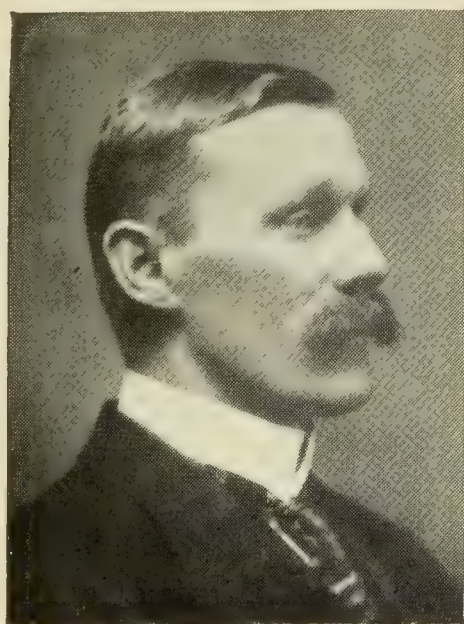
PRODUCTS.—Sugar, rum, coffee, gold, diamonds and timber.

BRITISH HONDURAS

HISTORY.—A well-wooded region on the east coast of Central America south of Yucatan, which attracted adventurers from Jamaica as early as 1638. In 1739, the native

BRITISH HONDURAS—*continued*

king made a treaty ceding the country to Great Britain, and forts were built on the island of Ruatan and at Black River.



Col. Sir Eric Swayne  
K.C.M.G., C.B. Governor and  
Commander-in-Chief

By the Treaty of Paris, 1673, it was agreed to abandon these settlements, and the garrisons were withdrawn. The settlers chiefly engaged in the wood-cutting industry remained, in spite of attempts by the Spaniards to expel them by force. The last attempt to establish the sovereignty of Spain was defeated by the inhabitants at the "Battle of St. George's Cay" in 1798. The settlement was declared a British Colony in 1862.

DATE OF ANNEXATION.—1839.

AREA.—8,598 square miles.

CLIMATE.—Sub-tropical; maximum shade temperature 98°, minimum, 50° F.

POPULATION.—Estimated at 42,406.

CAPITAL.—Belize.

GOVERNMENT.—Is vested in a Governor, assisted by executive and legislative councils.

LAWS AND CUSTOMS.—For many years the settlers elected magistrates who discharged all executive and judicial functions, and resolutions passed at public meetings formed the laws of the community. These were codified and were known as "Burnaby's Laws" and still form, together with English common law, the basis of judicial decisions in the colony.

RACES.—Besides white residents, there are aboriginal Indians, Caribs, Negroes, East Indians and Chinese.

DEVELOPMENT.—A railway is in process of construction. Belize and the most southerly town of the colony, Punta Gorda, are connected by telegraph and telephone wires.



BRITISH HONDURAS—*continued*

RELIGION.—There is an Anglican and also a Roman Catholic Bishop of Honduras; the Church of Scotland; the Wesleyan Methodist and Baptist denominations are represented.

LANGUAGE.—English, Carib.

EDUCATION.—The primary and secondary schools (chiefly denominational) receive grants from the Colonial government.

PRODUCTS.—Mahogany and logwood, sugar, rubber and fruit.

## BERMUDA

HISTORY.—The Bermudas or Somers' Islands form a group of about 300 islands 580 miles to the east of Cape Hatteras in North Carolina. They were discovered by a Spanish mariner, Juan Bermudez, in 1515, and named after him. The Spaniards did not, however, form a settlement, and in 1609 Admiral Sir George Somers' ship "The Sea Venture," bearing colonists to Virginia, was wrecked on this coast. This event stimulated British interest in the islands which were granted by James I. to the Virginia Company, who afterwards transferred them to the "Governor and Company of the City of London for the plantation of the Somers' Islands."

Owing to their geographical position the Bermudas have become an important naval station, and they possess a remarkably fine floating dock which was towed out from England in 1869.

DATE OF ANNEXATION.—1609.

AREA.—19 square miles.

CLIMATE.—Celebrated for its mildness and salubrity; there is practically no winter, the temperature never falling below 40° F., while in summer it does not rise beyond 85° F.

POPULATION.—17,535.

CAPITAL.—Hamilton.

GOVERNMENT.—Is vested in a Governor aided by executive and legislative councils.

BERMUDA—*continued*

LAWS AND CUSTOMS.—British law as modified by colonial ordinances prevails.

GOVERNOR.—Lieut.-General Walter Kitchener, C.B.

RACES.—A little over one-third of the population are of English descent ; the remainder belong to the negro race.

DEVELOPMENT.—Ireland Island in the centre of the group is given up to H.M. Dockyard and other naval establishments. A telegraphic cable connects the islands with Halifax, Nova Scotia. There are good roads but no railways within the colony.

LANGUAGE.—English.

EDUCATION.—All the schools are private schools charging fees. Attendance is compulsory : 27 schools receive State aid and 25 are without it.

PRODUCTS.—Large crops of early potatoes, onions, and lily bulbs, tomatoes and beetroot are raised. Arrowroot is grown and manufactured.







THE FIRST COLONIAL CONFERENCE, 1902

THE BRITISH EMPIRE  
IN  
AUSTRALIA





HIS EXCELLENCY THE RT. HON. THE EARL OF DUDLEY  
P.C., G.C.M.G., G.C.V.O.  
Governor-General of the Australian Commonwealth

## AUSTRALIA

Australia was the last of the great discoveries which opened up a New World to the astonished gaze of the Old.

Rumours of a mysterious "Terra Australis," or great southern land, had begun to reach Europe in the sixteenth century, and a vague shape, sometimes styled "Java le Grande," appears in maps of the world as early as 1555.

In 1605, Pedro Fernandez de Quiros, a Spanish seaman who had sailed as pilot with Alvaro de Mandana, on his voyage to Santa Cruz, reached the New Hebrides, and his lieutenant, Louis Vaez de Torres, sailed through the straits which still bear his name, landing at New Guinea, and doubtless sighting the northern shores of Queensland. Its  
discovery

A few years later, Dirck Hartog, and then Abel Janszoon Tasman, sailed along the west coast to New Zealand and Tasmania.

In 1688, Dampier explored 1000 miles of the north-west coast and re-visited it in 1699 in "H.M.S. Roebuck."

Yet so little had been definitely ascertained about the great island continent of the southern seas as late as the end of the seventeenth century, that Dampier, who at that period certainly knew more about it than anyone else, wrote "New Holland is a very large tract of land. It is not yet determined whether it is an island or a main continent; but I am certain that it joyns neither to Asia, Africa nor America."

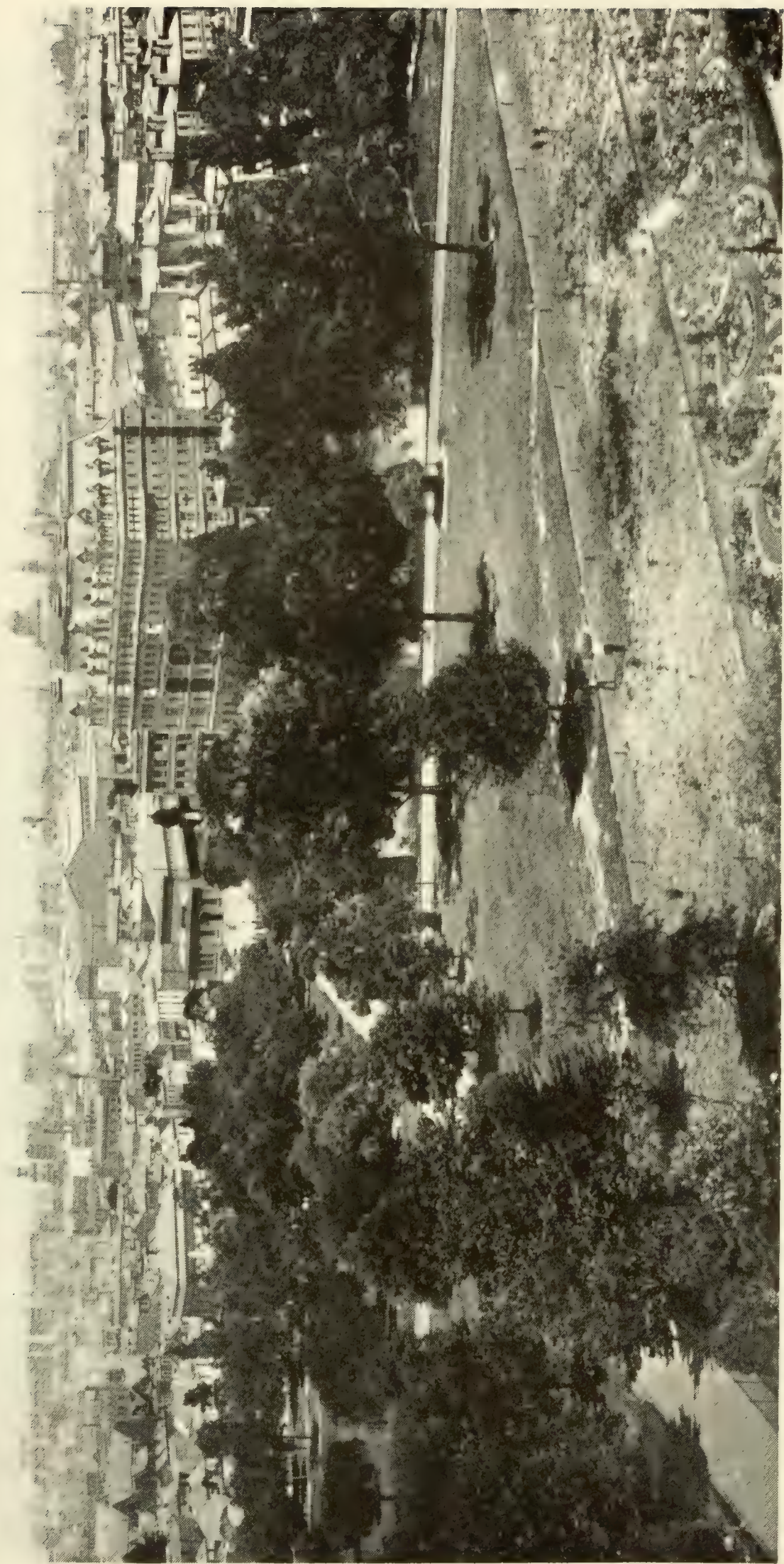
The first great impetus towards British occupation of the country was given 70 years later, when James Cook, having set out in 1768, as Lieutenant-in-Command of H.M.S. "Endeavour" with a party of men of science to observe the transit of Venus from Tahiti, determined to return by the Pacific route.

He sailed through the narrow strait separating the New Zealand Islands, explored their coast line, and reached the eastern shore of Australia.

The spot where he landed was covered with the abundant verdure of the Australian autumn season, and the voyagers called it "Botany Bay."

Captain Cook made two subsequent voyages to the southern seas, and before his death in 1779, had cleared up most of the problems of Australasian exploration.





MELBOURNE  
The present seat of the Commonwealth Government of Australia



The voyages of the "Investigator" and the "Beagle," and the discovery of the channel between Tasmania and the mainland, by Surgeon Bass in 1798, served to complete, in main outline, the coast map of Australia.

The practical task of colonisation was commenced in 1788, when Captain Phillip landed with a party numbering about 1,100 persons. He disembarked at Botany Bay, but almost immediately transferred his followers to Port Jackson, near the site of the modern city of Sydney. The prosperity of the infant colony was greatly enhanced by the introduction, by Captain MacArthur and Captain Waterhouse, of breeds of Spanish and other sheep. Sheep-breeding has been one of the staple industries of Australia ever since.

Its  
colonisation

Having surmounted some early difficulties, including a mutiny against Governor Bligh, the colony rapidly advanced in wealth and in numbers.

The nineteenth century witnessed enormous progress in many directions.

Vast fertile plains to the west of the Blue Mountains were discovered, and in addition to the original settlement of New South Wales, great and flourishing States grew into being. Western Australia was formed in 1829, Victoria in 1837, and in the same year the city of Adelaide, destined to be the capital of the great central State of South Australia. In 1842, Brisbane was established and the number of white inhabitants of the Australian colonies had risen to a total of 145,000.

Division into  
States

The practice of sending convicts to Australia was discontinued in 1841, and the discovery of gold, ten years later, gave an immense stimulus to immigration.

The various sections into which Australian territory had been divided became self-governing States, with representative institutions and separate responsible administrations.

The need for a co-ordinating and central organisation for common purposes having made itself felt, these States combined with Tasmania to form the Commonwealth of Australia, while retaining their several provincial governments for local purposes.



The Commonwealth thus formed was sanctioned by the British Government on July 9, 1900, and was proclaimed in Sydney on January 1, 1901.

With the exception of a slight set-back, due to a wave of financial depression in 1893, the progress of Australia has been rapid and continuous, and as yet only the fringe of its vast territory and the first fruits of its boundless natural resources have been exploited.

The great plains of the centre, and the illimitable desert reaches of the north-west may yet be subjugated by the art of man, and fertilised by the new aids which mechanical science will place at his disposal.

The future of  
Australia

Millions of acres have already been brought under cultivation or utilised for pasturage, and the results obtained, together with those of mining and manufacturing industries, during little more than one century of effort, serve but as the index of the magnificent possibilities of the future.

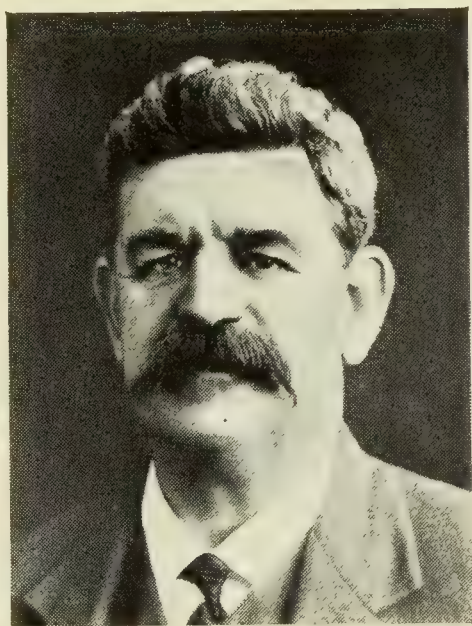
A great and vigorous nation of British ancestry, and strongly imbued with British traditions, is growing up under the Southern Cross and is rapidly pressing forward in civilisation and in material wealth beneath the banner inscribed "Advance Australia."

#### NEW SOUTH WALES

HISTORY.—The oldest colony of Australia received its name from Captain Cook, who visited the coast in 1770. The settlement of New South Wales, which was started by Captain Phillip in 1788, was at first held to include the whole eastern portion of the continent. The States of Victoria and Queensland were afterwards delimited. During its early years the colony suffered somewhat from scarcity of food, but the introduction of free colonists, to whom grants of land were given, soon stimulated agriculture and sheep-breeding to a point which rendered the colony self-supporting. The black aborigines belong to a very primitive nomadic type, and have not offered any serious resistance to British colonisation. Gold was discovered at Bathurst in 1851, and the deposits extend over a wide

NEW SOUTH WALES—*continued*

area. Up to 1903 the value of the gold output alone was £53,000,000.



The Hon. J. S. T. McGowan  
Prime Minister and Treasurer

DATE OF ANNEXATION.—1788.

AREA.—310,367 square miles.

CLIMATE.—Temperature varies from the coldest to be met with in the British Isles, to the genial warmth of the Mediterranean; the rainfall decreases as the distance from the coast increases.

POPULATION.—1,664,644.

CAPITAL.—Sydney.

GOVERNMENT.—Is vested in a Governor appointed by the Crown, a legislative council and a legislative assembly.

LAWS AND CUSTOMS.—Owing to the preponderance of the British element in the population, laws and customs follow very largely those of the Mother Country.

There are two forms of local government organisation, namely, shires and municipalities. The shires are again subdivided into ridings. The franchise extends to all males over the age of 21 years.

LIEUT.-GOVERNOR.—H. E. Lord Chelmsford, K.C.M.G.

RACES.—The Australians, born of British descent, are in the majority; there are also many immigrants from the United Kingdom; Chinese; Germans and other foreigners; about 7000 aboriginals and half-castes.

DEVELOPMENT.—There are government railways, tramways, telegraph and telephone systems.

RELIGION.—All religions are free. Church of England, Roman Catholic, Presbyterian and Methodist are the chief denominations.

LANGUAGE.—English.

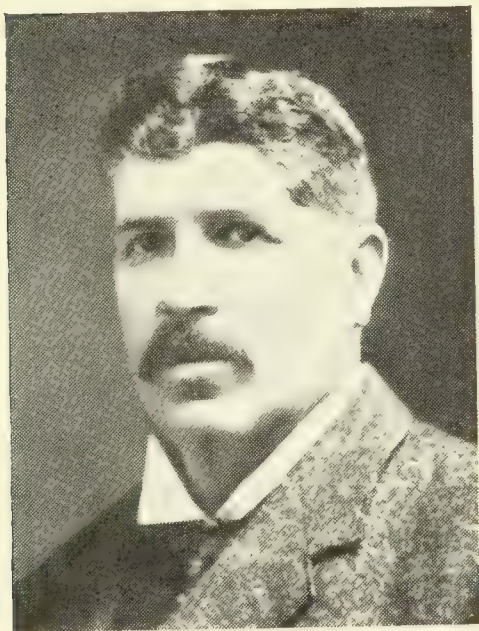
EDUCATION.—Is compulsory and free. In addition to the State schools, there are private colleges and schools, and the University of Sydney.

PRODUCTS.—Sheep, cattle and horses. Cereals, hay, fruits, wine, silver, gold, coal, tin, copper and iron.



## VICTORIA

**HISTORY.**—Victoria is the smallest of the Australian States, with the exception of Tasmania, in geographical area but not in wealth. It was administered from Sydney until 1851, when it was constituted a separate colony. Responsible government was introduced in 1857.



The Hon, John Murray  
Premier, Chief Secretary and  
Minister for Labour

Very large deposits of gold have been discovered at Clunes, Ballarat, Forest Creek and Bendigo, the quantity mined up to 1904 being valued at £269,970,746.

**DATE OF ANNEXATION.**—1788.

**AREA.**—87,884 square miles.

**CLIMATE.**—Warm, dry and healthy.

**POPULATION.**—1,297,557.

**CAPITAL.**—Melbourne.

**GOVERNMENT.**—Is vested in a Governor aided by an Executive Council and a Parliament consisting of a legislative council and a legislative assembly.

**LAWS AND CUSTOMS.**—Universal adult suffrage exists: women being eligible as voters. Members of the Legislative Assembly are paid an official salary of £300 a year. The immigration of coloured persons into the Colony is restricted.

**GOVERNOR.**—Sir Thomas D. Gibson Carmichael, Bart., K.C.M.G.

**RACES.**—Almost all the Victorians are of British descent; there are a few aboriginal “black fellows” in the country districts.

**DEVELOPMENT.**—Well advanced, government railways (3,401 miles), telegraph and telephone systems are in full operation.

**RELIGION.**—Church of England, Roman Catholic, Presbyterian, Methodist, Baptist.

**LANGUAGE.**—English.

**EDUCATION.**—Educational establishments in Victoria are of four classes, namely: The Melbourne University, with its three affiliated colleges; State schools for primary education, private schools for both primary and secondary education, and technical schools for instruction in various arts.

**PRODUCTS.**—Wool, wheat, grapes, fruit, gold, tin, copper, coal, sheep, horses and cattle.

## SOUTH AUSTRALIA

**HISTORY.**—When first constituted a British province by Act of Parliament of William IV., South Australia was



Hon. J. Verran  
Premier and Commissioner  
of Works and Mines

bounded on the north by the 26th degree of south latitude, and on the west by the 132nd degree east longitude. The south coast of the State was surveyed by Flinders in 1802, and Stuart discovered the Murray river and its upper tributaries in 1829. The first settlements were formed at Kangaroo Island, and at Adelaide, in 1836. Copper was discovered in 1842. Responsible government was established six years later, and Stuart reached Port Darwin in 1861. The

Northern Territory was then added to the State, making its northern boundary the Indian Ocean, and the western boundary was advanced to the 129th degree of east longitude, thus embracing the territory formerly known as "No-man's Land."

**AREA.**—903,690 square miles.

**CLIMATE.**—Dry and salubrious.

**POPULATION.**—412,808.

**CAPITAL.**—Adelaide.

**GOVERNMENT.**—Is vested in a Governor aided by an Executive Council and a Parliament consisting of a Legislative Council and a House of Assembly.

**LAWS AND CUSTOMS.**—The franchise for both houses is open to all adults, male and female, who are natural born or naturalised subjects of His Majesty, and have lived for six months continuously in South Australia.

**GOVERNOR.**—H. E. Admiral Sir Way Hort Bosanquet, G.C.V.O., K.C.B.

**RACES.**—Chiefly Australian, there are some 2,500 Chinese residents in the Northern Territory beside the aborigines.



SOUTH AUSTRALIA—*continued*

The immigration of Chinese is controlled by the Commonwealth Government.

DEVELOPMENT.—The great transcontinental telegraph of Australia, from Port Augusta to Palmerston (nearly 2000 miles long), has more than anything else brought South Australia into world-wide notice as a colony of astonishing enterprise.

RELIGION.—The leading denominations are, Church of England, Roman Catholic, Methodist, Lutheran, Baptist, Presbyterian and Congregational.

EDUCATION.—Is compulsory. There are 690 primary schools. The University of Adelaide is authorised to grant degrees.

PRODUCTS.—Wheat, fruit, wines, sheep, cattle, horses, copper, silver and gold.

QUEENSLAND

HISTORY.—In 1770, Captain Cook landed at Moreton Bay, but the river Brisbane, from which the Capital city derives its name, was not discovered until 1823. A settlement was formed from New South Wales at Moreton Bay in 1824, and squatters began to settle on the Darling Downs, after their exploration in 1828, but the territory was not thrown open to colonisation until 1842. Its administration was separated from that of New South Wales on December 10, 1859, and the new colony named Queensland. It had responsible government from the first.

DATE OF ANNEXATION.—1788.

AREA.—670,500 square miles.

CLIMATE.—Hot, suitable to Europeans.

POPULATION.—Estimated at 578,548.

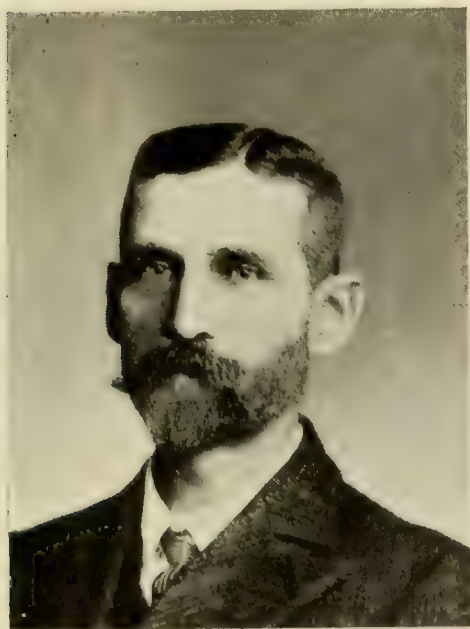
CAPITAL.—Brisbane.

GOVERNMENT.—The Parliament consists of a legislative assembly and a legislative council. The Governor is assisted by eight responsible Ministers.

LAWS AND CUSTOMS.—No property qualification is required for membership in either branch of legislature, the

QUEENSLAND—*continued*

voting for members of the assembly is by ballot, and the Elections Act Amendment Act of 1905, provides for male and female adult franchise on residential qualification only.



Hon. D. F. Denham  
Premier, Chief Secretary and  
Vice-President

GOVERNOR. — Sir. Wm. MacGregor, G.C.M.G., C.B., M.D.

RACES. — Mostly Australasian born of European parentage. There are also Chinese, Polynesians, and other Asiatics, besides the aborigines.

DEVELOPMENT.—Both the coast and the interior are well supplied with railways, 3,498 miles being at present in operation. There is also a steam tramway line from Townsville to Ayr, a distance of 50 miles. Telegraph and telephone communications are widely extended.

RELIGION.—Church of England, Roman Catholic, Presbyterian, Wesleyan, Lutheran and Baptist are the principal denominations.

EDUCATION.—Elementary education is free and compulsory. There are numerous State, private and grammar schools. Technical education is liberally endowed, and a university is in course of formation.

PRODUCTS.—Wool, gold, maize, wheat, fruit, meat, butter and sugar.

TASMANIA

HISTORY.—In 1642, a Dutch seaman, Abel Jansz Tasman, sailing southward from Mauritius in search of "Terra Australis" landed upon this island. Tasman called it after the Governor of the Indies, Van Diemen's Land, but his own name, as the discoverer, has now become inseparably associated with it. It was formally taken possession of



TASMANIA—*continued*

by England in 1803, and made auxiliary to the penal settlement at Botany Bay. The first free immigrants arrived in

1816, and responsible government was introduced in 1856.



Hon. Sir N. E. Lewis  
K.C.M.G., Premier  
and Treasurer

DATE OF ANNEXATION.—1803.

AREA.—26,215 square miles.

CLIMATE.—Healthy and temperate, well suited to Europeans.

POPULATION.—185,824.

CAPITAL.—Hobart.

GOVERNMENT.—The Parliament consists of a Legislative Council and a House of Assembly. The Governor is advised by a Cabinet of responsible Ministers.

LAWS AND CUSTOMS.—Universal adult suffrage, including women, obtains. For purposes of local government, the country is divided into 49 municipalities, exclusive of Hobart and Launceston. The Presidents of the municipal councils are called wardens, and are elected annually.

GOVERNOR.—H. E. Major-General Sir Harry Barron, K.C.M.G., C.V.O.

RACES.—Immigrants from Australia and Europe; native-born Australians of British descent. The black aboriginals are now extinct.

DEVELOPMENT.—There are abundant railway, telegraph and telephone communications.

RELIGION.—Church of England, Roman Catholic, Wesleyan Methodist, Presbyterian, Independent and other denominations.

EDUCATION.—Is compulsory. There are 356 State schools.

PRODUCTS.—Wool, gold, silver, copper, tin, lead, coal, timber, fruit and sheep.

## WESTERN AUSTRALIA

**HISTORY.**—A settlement was formed at King George Sound in 1826, at the instance of the New South Wales govern-



Hon. F. Wilson  
Premier and Colonial  
Treasurer

ment, and the coast from that point to the Swan River surveyed by Captain James (afterwards Sir James) Stirling, in "H.M.S. Success." In May, 1829, Capt. Freemantle (afterwards Sir Charles Freemantle, G.C.B.), in "H.M.S. Challenge," took possession of the territory, and in June, 1829, Captain Stirling founded the Swan River Settlement, now the Commonwealth State of Western Australia. In 1850 the inhabitants petitioned that it might be made a penal settlement. Convicts were accordingly sent out from that time until

1868, and their work in making roads did much to open up the country.

**DATE OF ANNEXATION.**—1829.

**AREA.**—975,920 square miles.

**CLIMATE.**—Variable in parts. Generally dry and pleasant to Europeans. Mean temperature at Perth 64° F.

**POPULATION.**—282,856.

**CAPITAL.**—Perth.

**GOVERNMENT.**—Consists of a Governor, a legislative council and a legislative assembly.

**LAWS AND CUSTOMS.**—Subject to certain qualifications, any person not under 21 years of age, who is a natural born or naturalised subject of His Majesty, and has resided in Western Australia for six months continuously, and in the district for which he claims to be enrolled for one month previous to the election, is entitled to vote.

**GOVERNOR.**—H. E. Sir Gerald Strickland, K.C.M.G.



WESTERN AUSTRALIA—*continued*

RACES.—Australasians, chiefly of British parentage or descent, and immigrants from Europe. Some 1,500 Chinese, and the aboriginal natives.

DEVELOPMENT.—Over two thousand miles of railway have been laid in the colony under the auspices of the government, besides several private lines. There is telegraphic communication with Europe *via* South Australia.

RELIGION.—Church of England and Roman Catholic are the principal denominations.

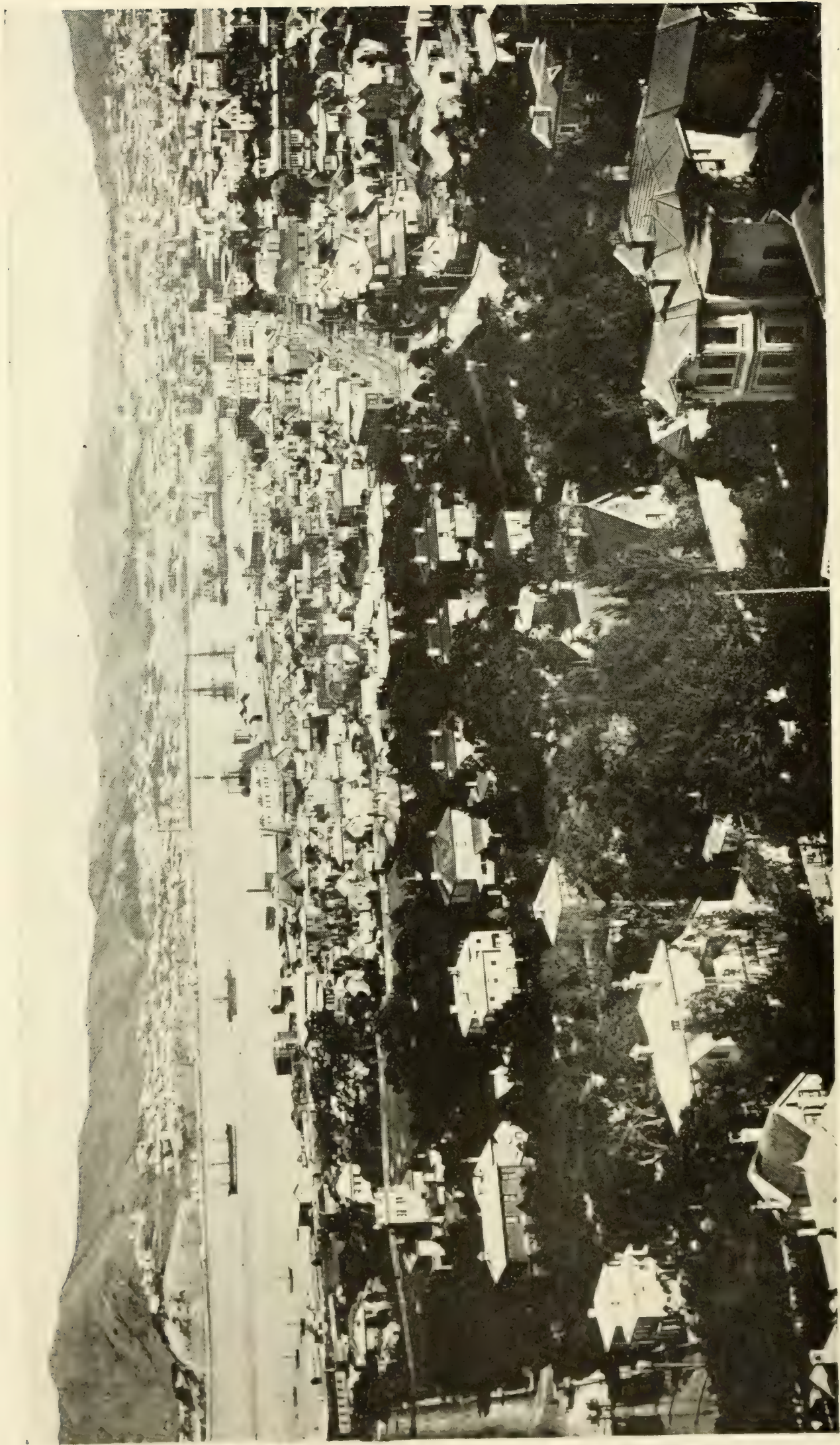
EDUCATION.—Is free and compulsory. There are numerous government and private schools, and a fine technical school at Perth which exercises some of the functions of a university.

PRODUCTS.—Gold, wool, timber, pearls, copper, lead, tin and coal.



THE BRITISH EMPIRE  
IN  
NEW ZEALAND AND OCEANA





WELLINGTON



## NEW ZEALAND

**HISTORY.**—The Dominion of New Zealand consists of three main islands, the North, South and Stewart Islands, with several groups of smaller islands at some distance from the principal group.



Rt. Hon. Sir Joseph George  
Ward, P.C., K.C.M.G.  
Prime Minister, Minister of  
Finance

New Zealand was discovered by Tasman, but Captain Cook was the first European to land and explore the coasts. It subsequently became a resort for whalers and traders, chiefly from Australia.

The native Maori chiefs ceded the sovereignty of the country to the British crown in 1840 at the Treaty of Waitangi.

The Maoris are a remarkable race, of Polynesian origin and of much higher type than the Aborigines of Australia. Many of the clans have always been friendly to the British settlers, but two wars have been waged, one in 1845–8, and the other lasting intermittently for ten years, 1860–1870. The colony was at first a dependency of New South Wales, but was separated by letters patent in 1842.

The settlement of the territory was largely effected by the New Zealand Company, whose Royal Charter was surrendered in 1850.

**DATE OF ANNEXATION.**—1840.

**AREA.**—North Island 44,468, South Island 58,525, and Stewart Island 665 square miles.

**CLIMATE.**—Temperate, much like that of England, but warmer and more equable.

**POPULATION.**—936,309, including 47,731 natives.

**CAPITAL.**—Wellington, in the North Island.

**GOVERNMENT.**—Consists of a Governor aided by a Ministry, a Legislative Council and a House of Representatives.



NEW ZEALAND—*continued*

**LAWS AND CUSTOMS.**—Adult suffrage, including women as voters.

**GOVERNOR AND COMMANDER-IN-CHIEF.**—H.E. the Lord Islington.

**RACES.**—British, Maori, Chinese.

**DEVELOPMENT.**—In March, 1910, there were 2,717 miles of government railway lines in working order, and more under construction. New Zealand is remarkable for the great public works which have been undertaken, and carried through by the government and by municipal bodies; these include besides railways, roads, bridges, telegraphs and tramways.

**RELIGION.**—The principal denominations are Church of England, Presbyterian and Wesleyan.

**LANGUAGES.**—English and Maori.

**EDUCATION.**—The State system of education is free, secular and compulsory. There are public primary schools, private schools, grammar schools, colleges and schools for Maoris. The University of New Zealand has power to confer degrees.

**PRODUCTS.**—Wool, cattle, sheep, butter, cheese, grain, Kauri pine, Kauri gum, gold, coal, iron and copper.

FIJI

**HISTORY.**—A ring of islands, over 200 in number, open on the southern side, and situated in the South Pacific Ocean, 1,100 miles from Auckland, New Zealand.

The islands were sighted by Tasman in 1643, and Turtle Island (or Vatoa) in the extreme south-east of the group, was discovered by Captain Cook in 1770. Some escaped convicts from Australia are said to have settled here in 1804.

In 1835, Wesleyan missionaries first came over from Tonga. The chief, Thakambau, offered the sovereignty of the islands to England, and in 1874 they were taken under British protection on the basis of a crown colony.

**DATE OF ANNEXATION.**—1874.

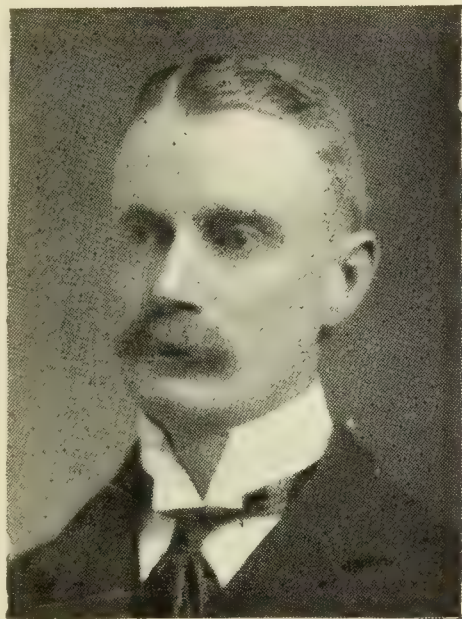
**AREA.**—8,034 square miles.

**CLIMATE.**—Tropical.

FIJI—*continued*

POPULATION.—120,124.

CAPITAL.—Suva, in the island of Viti Levu.



His Excellency  
Sir Francis H. May  
K.C.M.G., C.B., Governor

GOVERNMENT.—Is vested in a Governor aided by an Executive Council.

LAWS AND CUSTOMS. — The Colony is divided into seventeen provinces, each under the control of a European Commissioner or a Roko Tui (chief native officer). A large part of the taxes is still paid in produce, such as copra, sugar-cane, tobacco, etc.

RACES.—The Fijians are a race akin to the Papuans, but an admixture of the higher Polynesians has leavened the native Melanesian type.

DEVELOPMENT. Telegraph and telephone lines connect various parts of the colony. There is no railway at present.

RELIGION.—Wesleyan and Roman Catholic missions are at work.

LANGUAGE.—English, Fiji.

EDUCATION.—There are numerous State-aided schools and mission schools.

PRODUCTS.—Fruit, cocoanuts, sugar, para-rubber, tea, cotton, maize, tobacco, and arrowroot.

PAPUA

HISTORY.—The south-eastern part of the island of New Guinea, and the neighbouring island groups, previously known as "British New Guinea," were placed under the control of the Australian Commonwealth Government in 1905, and given the name "Papua."

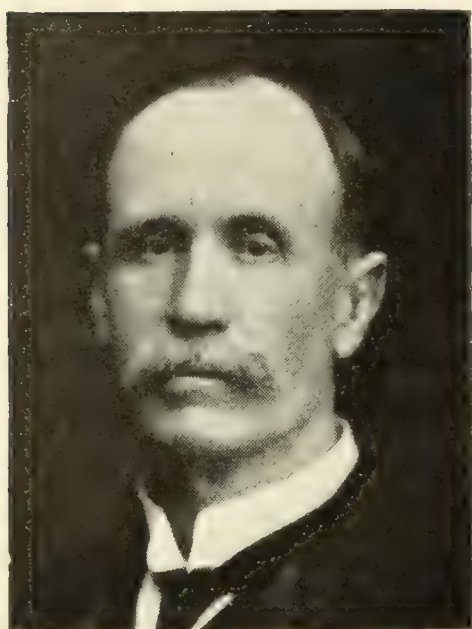
New Guinea was discovered as early as 1511, by Antonio de Abrea, and the Archipelagos by French navigators, towards the close of the eighteenth century.



PAPUA—*continued*

DATE OF ANNEXATION.—1888.

AREA.—90,540 square miles.



J. H. P. Murray, Esq.  
Lieutenant-Governor and  
Chief Judicial Officer

CLIMATE.—Warm in the southern latitudes, average temperature at Port Moresby  $81.4^{\circ}$  F.

POPULATION. — Estimated at 500,000.

CAPITAL.—Port Moresby.

GOVERNMENT.—Is under the control of the Australian Commonwealth, and is administered by a Lieutenant-Governor.

LAWS AND CUSTOMS. — The Papuans had no chiefs. There was no form of government among them save a loosely applied patriarchal authority. Village police are now being established. The general law of the territory is the same as that of Queensland.

RACES.—Papuan.

DEVELOPMENT.—Substantial wharves have been built at Port Moresby and Samarai, roads are being laid, internal communication is largely by river. Gold mining, chiefly alluvial, has been accompanied by some measure of success.

RELIGION.—Protestant and Roman Catholic missionary societies are at work in Papua.

LANGUAGE.—Motu, Keapara, Mukawa are some of the more important of the native dialects.

EDUCATION.—In a backward state at present. The natives have no history, and but few current well-defined traditions referring only to the acts of the last four or five generations.

PRODUCTS.—Trepang, copra, pearls, gold, sandal-wood, coffee and rubber.

## THE WESTERN PACIFIC

HISTORY.—By an order in council of 1877, a High Commissioner was appointed to have jurisdiction over all

islands in the Western Pacific not within the limits of the Colonies of Fiji, Queensland and New South Wales, nor under the authority of any civilised power.

Under this heading are included :

THE TONGA OR FRIENDLY ISLANDS.—These are governed by a native hereditary monarch, King George Tubou II., and legislative assemblies of two orders. The British protectorate was proclaimed in 1900.

AREA.—390 square miles.

POPULATION.—2,240.

CAPITAL.—Tongatabu.

THE ELLICE AND GILBERT GROUPS.—The natives, who are of Malayo-Polynesian race, have separate kings or chiefs, who are assisted by councils of chiefs and commoners.

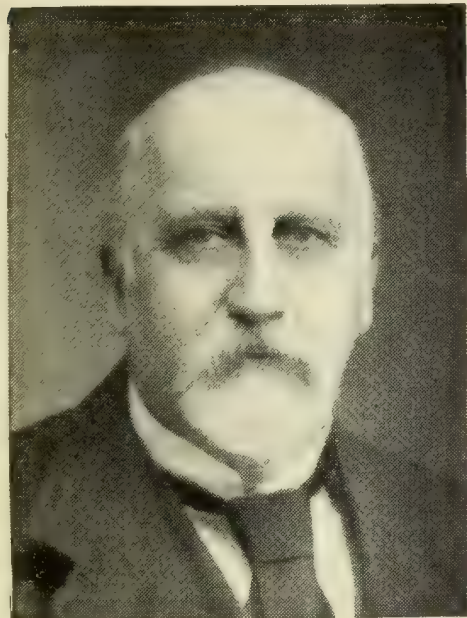
Courts of law have been established, and the efforts of Mr. C. R. Swayne, the first British Resident, and of his successor, Mr. W. F. Campbell, to establish an efficient system of administration, have met with considerable success.

American and British nonconformist missions, and the Roman Catholic Mission of the Sacred Heart, are at work in the islands.

AREA.—Including the Union of Tokelau Islands, 297 square miles.

POPULATION.—22,290.

THE BRITISH SOLOMON ISLANDS.—Consist of the Southern islands of the group including Shortland Island, Choiseul



Sir Everard im Thurm  
K.C.M.G., C.B.  
High Commissioner



THE WESTERN PACIFIC—*continued*

Isabel, New Georgia, Guadalcanar, Malaita, San Christoval, Bellona and the Rennell Islands, together with Ongtong-Java and other small islands in the vicinity of the main group.

AREA.—8,357 square miles.

POPULATION.—150,000, including 110 Europeans.

THE SANTA CRUZ ISLANDS.—Situated between the Solomon Islands and the New Hebrides group, and included in 1898 in the British Solomon Islands Protectorate. They are inhabited by Melanesians, chiefly occupied in the copra trade.

THE NEW HEBRIDES, to which are attached the Banks and Torres Islands, are under the control of a joint government of British and French resident commissioners.

The principal products are copra, maize and coffee.

The population which includes 630 Europeans is estimated at between 100,000 and 140,000.

THE PHOENIX GROUP include eight islands.

AREA.—16 square miles.

POPULATION.—59.

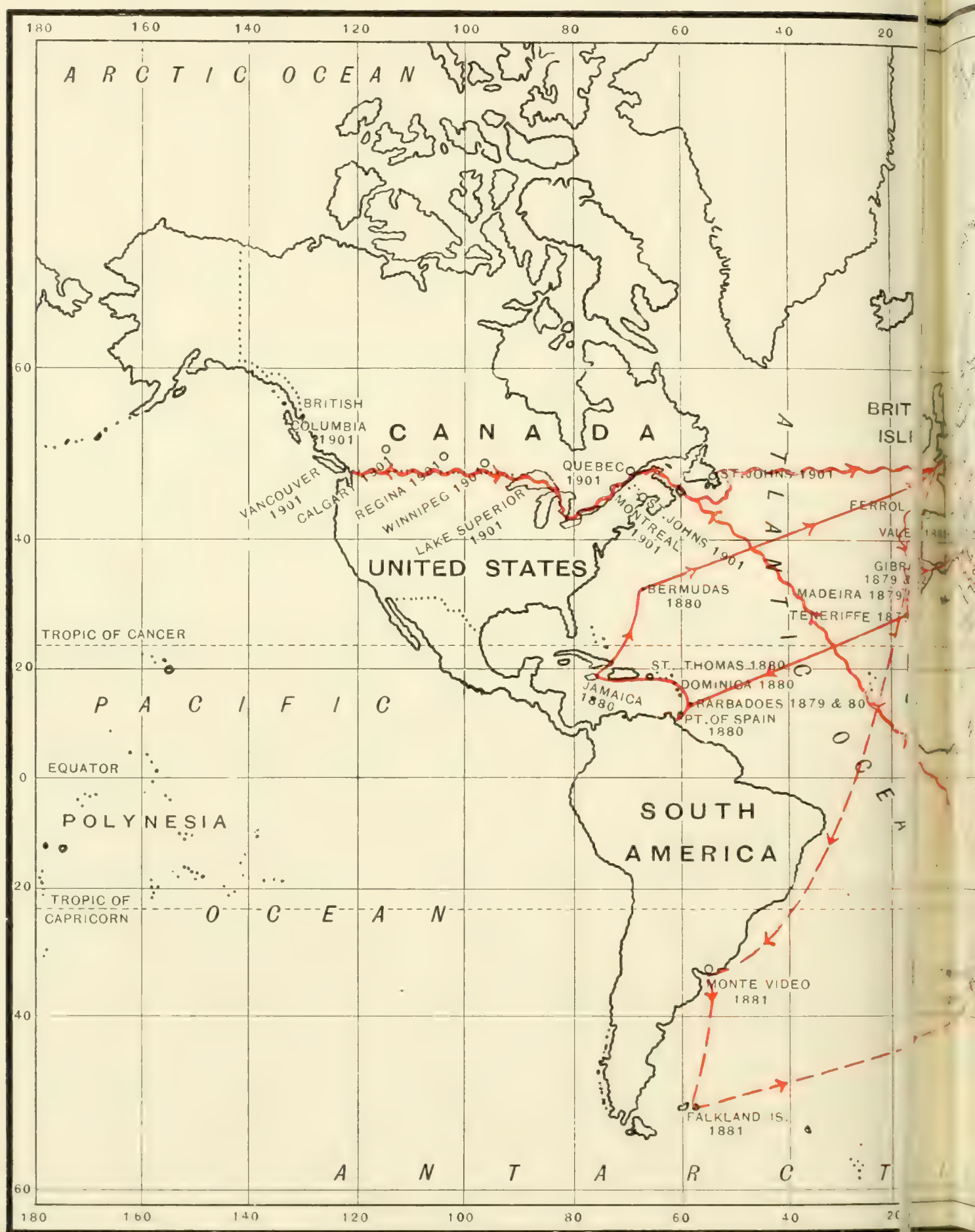
PITCAIRN ISLAND.—Pitcairn Island, nearly equi-distant from America and Australia, was discovered by Carteret in 1767. It remained uninhabited until occupied in 1780, by the Mutineers of H.M.S. "Bounty." Nothing was known of the existence of these inhabitants until 1808, when the island was again visited by a British ship.

AREA.—219 square miles.

POPULATION.—169.

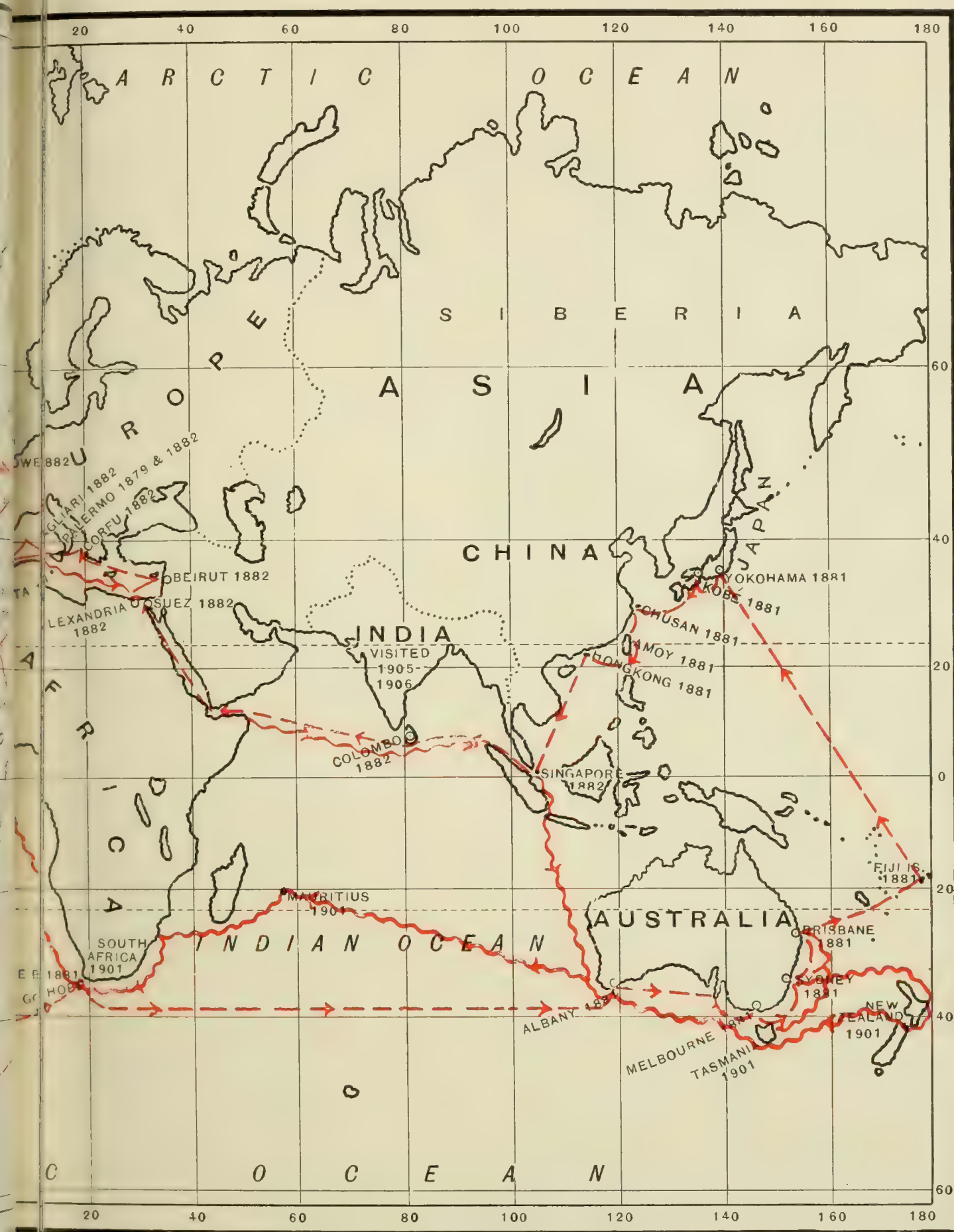
THE KING'S  
TOURS OF THE EMPIRE





MAP OF THE WORLD  
Showing the King's

H.M. KING GEORGE V. has travelled extensively through the vast empire over his reign. The principal tours undertaken have been:—(1) The two voyages with the *King of the Kings* (marked with a plain red line) and then to the Far East (marked with a dotted line). (2) The visit of His Majesty (then Prince of Wales) to India, in 1906. (3) The Colonial Tour in the "Ophir," 1901, when, as Prince and Princess of Wales, they visited the colonies (marked with a wavy line).



(EQUATOR'S PROJECTION)

Ports (in red ink)

Ship's rules.

Voyage, in H.M.S. Bacchante, in 1880 and 1882, first to the West Indies (marked

The Majesties visited Ceylon, Australia, New Zealand, South Africa and Canada



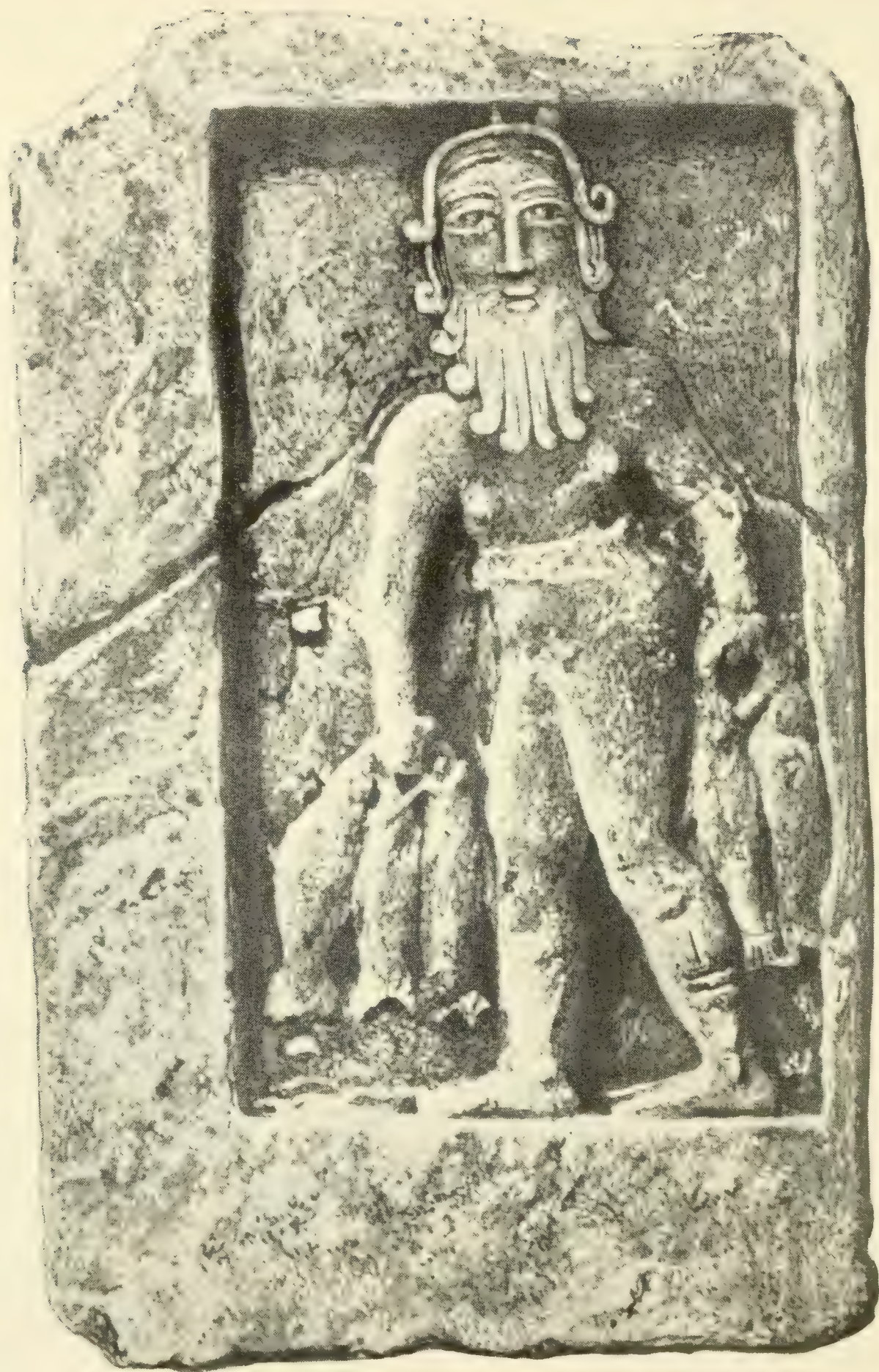


### SONS OF THE EMPIRE

The reception of the Colonial troops in London on their return from South Africa after the Boer War

THE  
EVOLUTION OF WEAPONS  
FOR THE  
BATTLE OF LIFE





## ADAPA

A SUMERIAN DEITY OF HEALING

About 6000 B.C.

Adapa is the earliest known personage directly associated with medicine. He was the human incarnation of Marduk, the divine Son of Ea, and was believed to possess the spells of life and death.

"Ea gave him wisdom,  
So that his command was like unto the word of God.  
To him also he gave deep knowledge;  
With the healing spell of life and the spell of death he was made."

*(Translated from a Babylonian Tablet)*



HISTORICAL EXHIBITION  
OF  
RARE AND CURIOUS OBJECTS  
RELATING TO  
MEDICINE, CHEMISTRY, PHARMACY  
AND THE ALLIED SCIENCES  
TO BE HELD IN LONDON, 1913

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ORGANISED BY, AND UNDER THE DIRECTION OF  
HENRY S. WELLCOME

With the object of stimulating the study of the great past, I have been for some time organising an exhibition in connection with the history of medicine, chemistry, pharmacy and the allied sciences, my aim being to bring together a collection of historical objects illustrating the development of the art and science of healing, etc., throughout the ages.

For many years I have been engaged in researches respecting the early methods employed in the healing art, both among civilised and uncivilised peoples. It has been my object in particular to trace the origin of the use of remedial agents, and enquire why and how certain substances came to be employed in the treatment of disease.

A consideration of such questions is always of interest and sometimes adds to our knowledge.

I anticipate that the exhibition will reveal many facts, and will elucidate many obscure points in connection with the origins of various medicines, and in respect to the history of disease. It should also bring to light many objects of historical interest hitherto known only to the possessors and their personal friends.

I shall greatly value any information sent me in regard to medical lore, early traditions or references to antient medical treatment in manuscripts, printed works, etc. Even though the items be but small, they may form important connecting links in the chain of historical evidence. Medical missionaries, and others in contact with native races, can also obtain particulars of interest in this connection. Every little helps, and, as I am desirous of making the Historical Medical Exhibition as complete as possible, I shall be grateful for any communication you may be able to make.



It is my desire ultimately to place before the profession, in a collected form, all the information obtained.

The success of the Historical Medical Exhibition will depend largely upon the co-operation of those interested in the subject with which it deals, and I again appeal, therefore, to all who possess objects of historical medical interest, to render their kind assistance by loaning them to me so that the Exhibition may be thoroughly representative. I should also highly esteem your kindness if you would inform me of any similar objects in the possession of others

I need hardly say that the greatest care will be taken of every object lent. All exhibits will be insured (also while in transit, if requested), and packing and carriage both ways will be paid.

The exhibition will be *strictly professional and scientific in character*, and will not be open to the general public.

The response to the preliminary announcement has been beyond my expectations, and this, together with the many valuable suggestions received from leading members of the medical profession, chemists and others at home and abroad, has prompted me to considerably widen the scope of the undertaking since it was first projected.

I have been strongly urged, and have now decided, to hold the Historical Medical Exhibition at the same time as the International Medical Congress, which is fixed to take place in London in the year 1913.

This decision will, I have no doubt, suit the convenience of the many medical practitioners from all parts of the world, who will be visiting England on the occasion of the Congress, and the intervening time will enable me to make the exhibition more comprehensive, and to include many objects of exceptional interest that have been promised from different quarters of the globe.

Hints and suggestions in connection with the exhibition will be much appreciated.

HENRY S. WELLCOME

SNOW HILL BUILDINGS  
LONDON, E.C., ENGLAND

## CLASSIFICATION OF EXHIBITS

### SECTION I

Medicine :—

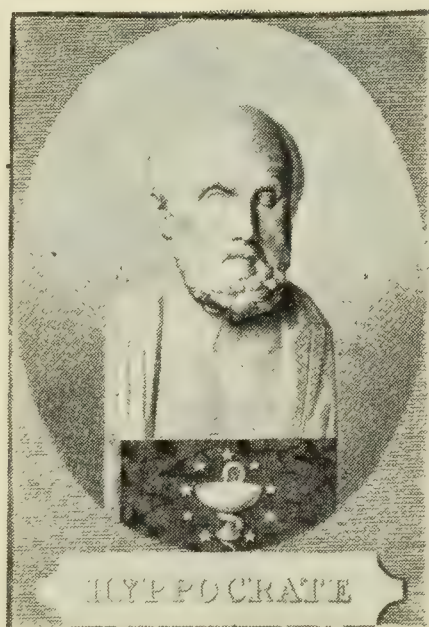


Dhanwantari  
The Vedic Father of  
Medicine and Physician  
of the Gods

- (a) Animal medicine ; *materia medica* of the animal creation : the tradition of the connection of animals with the healing art.
- (b) Medical deities of savage tribes and nations, figures, fetishes, charms, implements, and other objects associated with the art of healing by primitive peoples.
- (c) Antient deities of healing and other subjects associated with the art of healing by primitive peoples and the early civilisations.
- (d) Votive offerings for health (*Donaria*), amulets, amuletic medicines, gems, emblems, talismans, rings, charms, and other objects connected with the art of healing.

- (e) Paintings, drawings, engravings, etchings, photographs, models, bas-reliefs, sculptures and casts of medical interest.

- (f) Pictures from MSS. of all ages, of medical, surgical, pharmaceutical and alchemical interest.



Hippocrates  
The Greek Father of Medicine  
ca. 460 B.C



- (g) Portraits in oil, water-colours or wax, miniatures, silhouettes, etchings and engravings, or busts in sculpture of physicians, surgeons, alchemists, botanists, apothecaries, chemists, pharmacists, nurses, etc., of all periods.
- (h) Pictures of medical, chemical and pharmaceutical institutions of all nations.
- (i) Pictures representing the important epochs and interesting events, such as original operations, discoveries, etc., in the history of medicine, surgery, chemistry and pharmacy.
- (j) Medals, medallions, plaquettes and coins of historical medical interest.



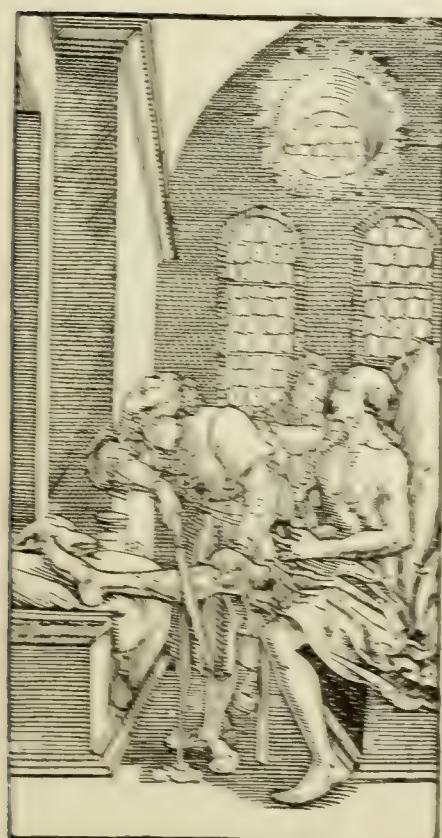
- (k) Rare and curious MSS., xylographs, incunabula, early printed books and works of especial historic interest, periodicals, pamphlets, book-plates, etc., of, and connected with, medicine, surgery, pharmacy, chemistry, botany and the allied arts.
- (l) Historic letters, prescriptions, autographs, case and note books, records of experiments, antient

diplomas, licences, corporate insignia, and personal relics of medical, pharmaceutical and chemical interest.



A. Le... : Dig... a—T... ..

(m) Relics of the influence of astrology in medicine, horoscopes, and other astrological diagrams bearing on the art of healing.



the early practice of the ...  
... ..  
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## SECTION 2

Surgery, Dental Surgery, Veterinary Surgery and Anæsthetics :—

- (a) Instruments used in surgery by pre-historic and savage peoples.
- (b) History and development of instruments and appliances used in surgery from the earliest times.
- (c) Curious appliances used in antient times ; barber-surgeons' bleeding basins and bowls, cupping implements, etc.

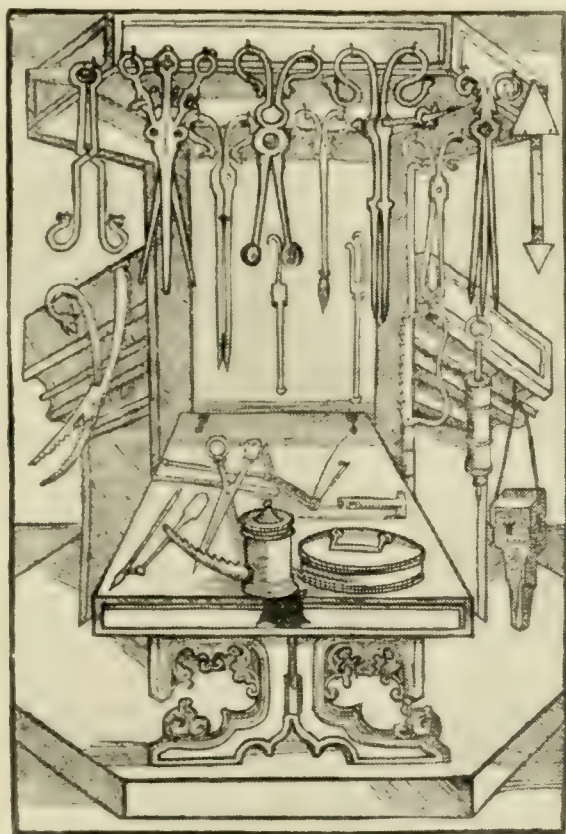




BARBER SURGEON'S SHOP  
From an Engraving of the XVII century



- (d) Improvised instruments and appliances that have been used in emergencies, especially those that have led to inventions and discoveries.



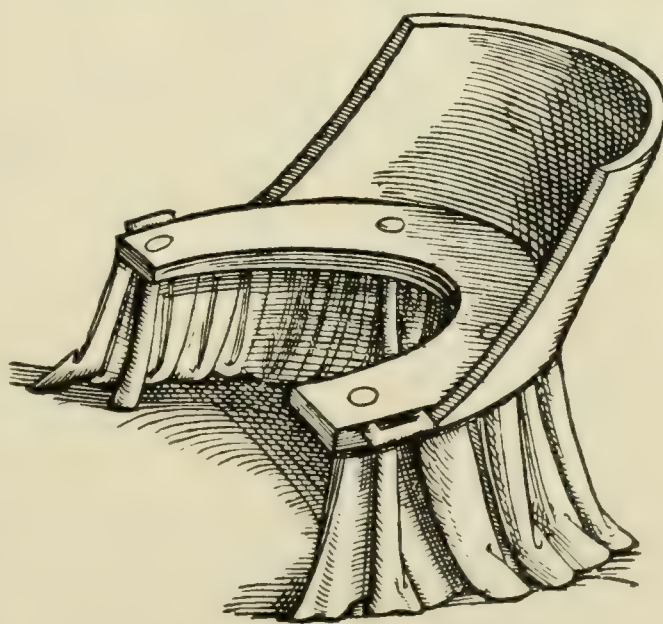
Surgical Instruments—XV century

- (e) Calculi, and other curious specimens of historical interest.
- (f) Relics of antient dentistry; early artificial dentures.
- (g) Antient dental instruments and appliances.
- (h) Antient instruments used in veterinary surgery.
- (i) Historical apparatus connected with the discovery and use of anæsthetics.

### SECTION 3

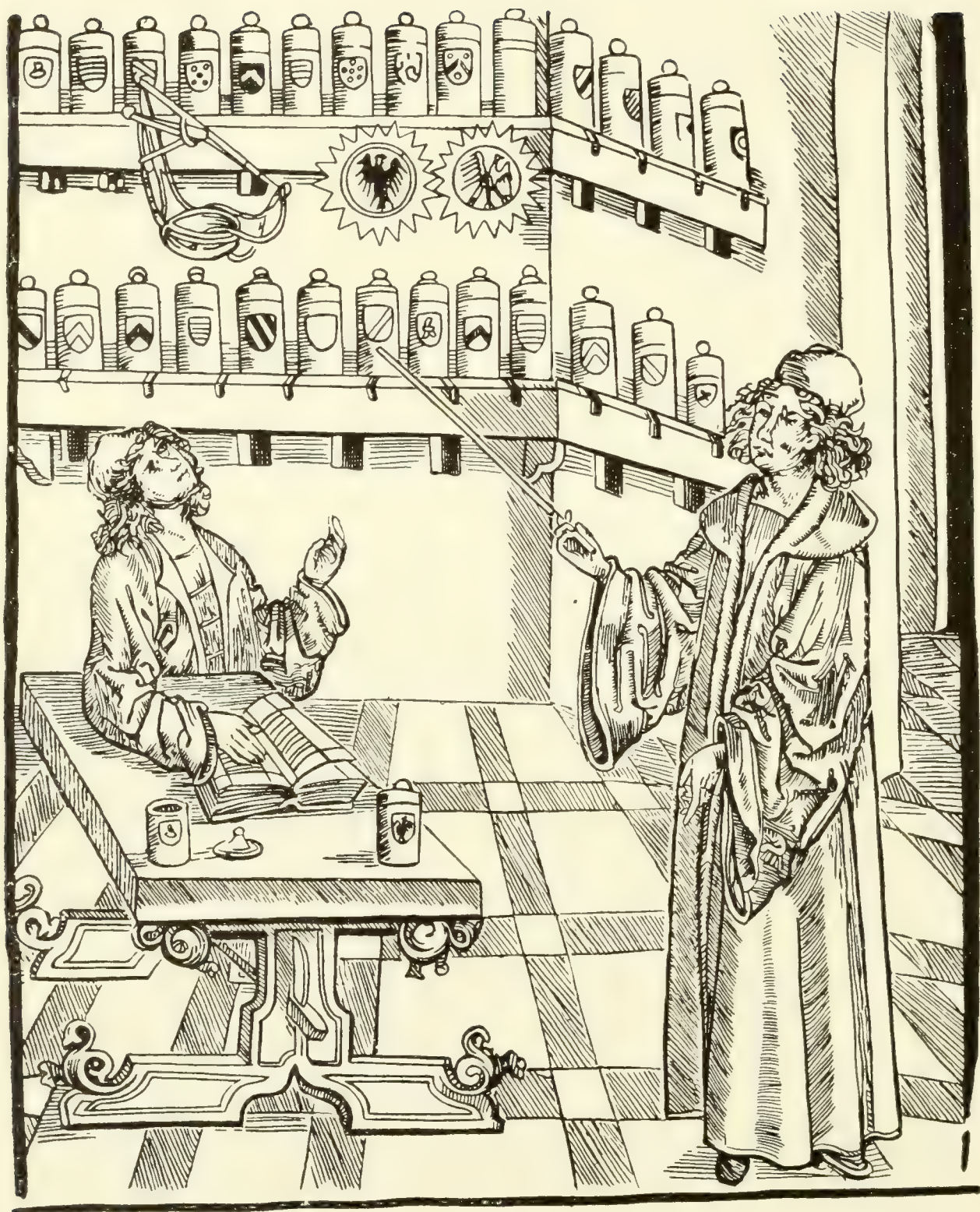
Anatomy, Pathology, Obstetrics, etc. :—

- (a) Curiosities of anatomy, and curious anatomical models in wax, ivory, etc.
- (b) History of the nomenclature, causation and treatment of the most important diseases that have afflicted mankind from the earliest times.
- (c) Obstetric chairs, and other appliances used in early midwifery practice, the lying-in room in antient times, models for obstetrical teaching.
- (d) Manacles and other appliances used in the treatment of the insane in antient times.



Obstetric Chair—XVI century



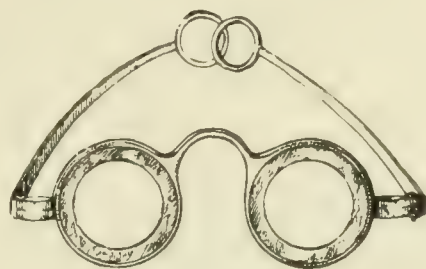


AN APOTHECARY'S SHOP  
1505

SECTION 4

Ophthalmics :—

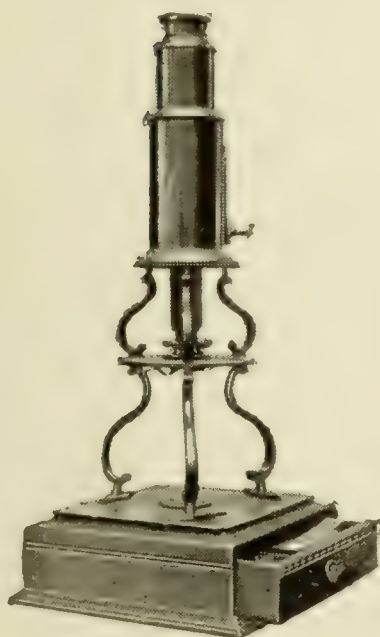
- (a) Antient spectacles, eye-glasses and instruments used as an aid to sight.
- (b) Antient instruments and appliances for testing sight, employed by oculists.
- (c) The microscope from the earliest period.
- (d) Historic microscopes.



Spectacles—XVII century

SECTION 5

Hygiene, Public Health and Preventive Medicine :—



Microscope—XVIII century

- (a) Objects of interest, antient and modern, connected with public health, preventive and tropical medicine.
- (b) Masks, and other preventive methods of protection against plague in antient times.
- (c) Exhibits illustrative of physiology, anthropology, microscopy, bacteriology, biology, parasitology, and geography.
- (d) Placards, posters, manifestos, declarations concerning epidemic diseases, etc.
- (e) Antient bills of health.

SECTION 6

Pharmacy :—

- (a) Antient pharmacies.
- (b) Materia medica of all ages, specimens of antient medicines and remedial agents of various periods.
- (c) Specimens illustrating the use of animal substances in medicine.



- (d) Early and curious relics of pharmacy.
- (e) Antient stills, alembics, mortars, and pharmaceutical implements.
- (f) Specimens illustrating the history of early pharmaceutical preparations (julip, rob and lohoch).
- (g) Curious bottles, carboys, ointment and specie jars, drug vases, pots, ewers, mills, containers, and implements and appliances used in pharmacy.



Pharmacy Vases—XVI and XVII century

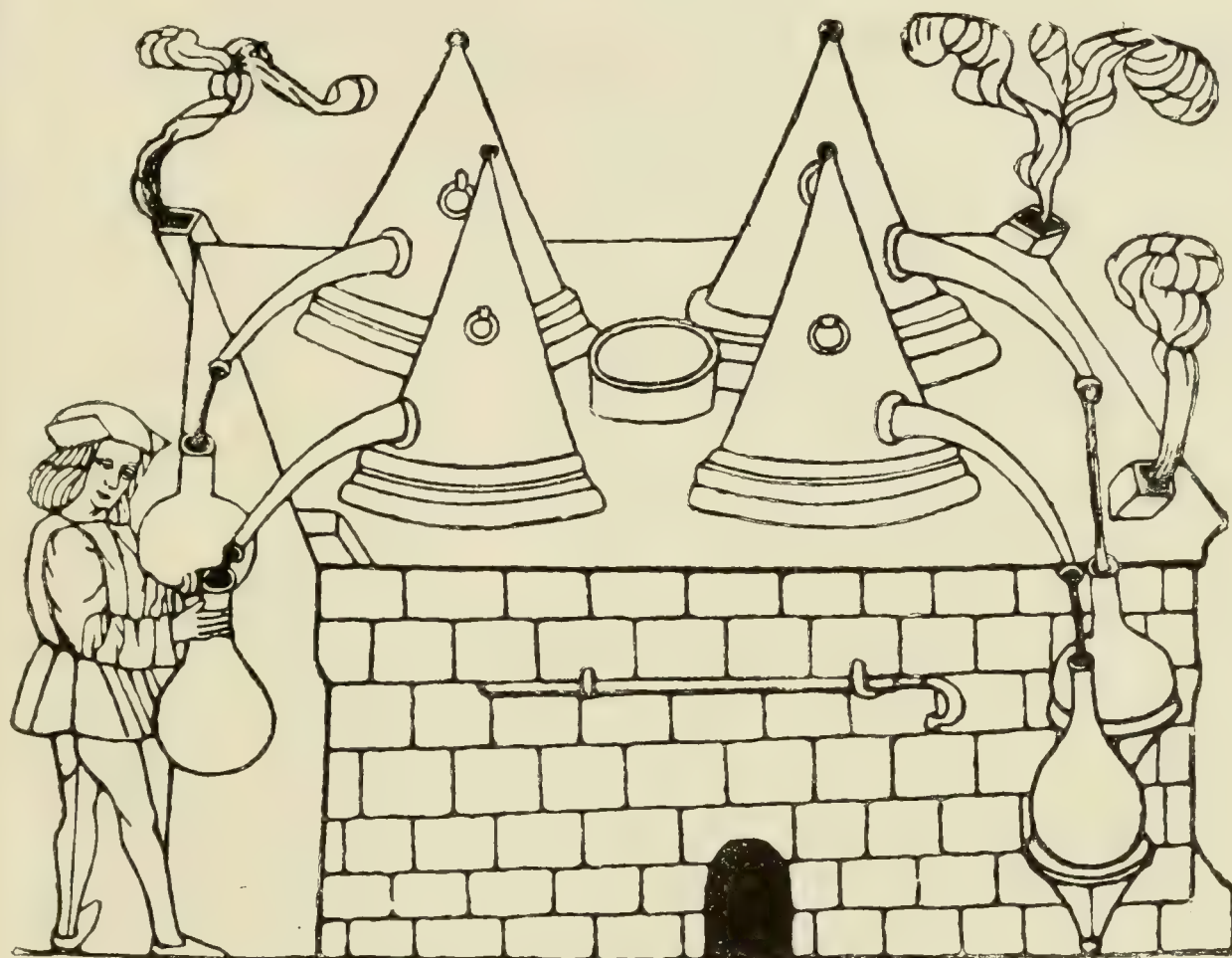
- (h) Scales, weights and measures of all ages,
- (i) Antient prescriptions and curious pharmaceutical recipes and recipe books.
- (j) Antient prescription books and price lists.
- (k) Antient counter bills, labels, business cards, curious advertisements and trade tokens.
- (l) Old travellers' note books and curious orders.
- (m) Antient apothecaries' shop signs and early fittings, early pharmaceutical preparations and specimens of obsolete and curious medical combinations.
- (n) Antient and modern medicine chests, civil, military and naval.

## SECTION 7

Chemistry and Botany :—

- (a) Alchemists' laboratories.
- (b) Antient stills, mortars and curious apparatus used by early alchemists.

- (c) Historical apparatus used by famous discoverers.
- (d) Products and preparations, antient and modern, of chemical and scientific research.



Apparatus for Distillation—XV century

- (e) First specimens of rare alkaloids, and other preparations made by their discoverers.
- (f) Rare elements and their salts, etc.
- (g) Curious astrological, magnetic and early electrical appliances.
- (h) Antient herbaria.
- (i) Specimens of abnormal plant forms and curious roots used in medicine.
- (j) Relics of famous botanists.

## SECTION 8

Hospitals, Nursing and Ambulance :—

- (a) Objects connected with early hospitals and general nursing.
- (b) Early appliances in nursing the sick.
- (c) Early ambulance appliances.
- (d) Antient feeding cups, bottles, urinals and bed-pans.
- (e) Naval and military nursing and ambulance appliances and equipments.

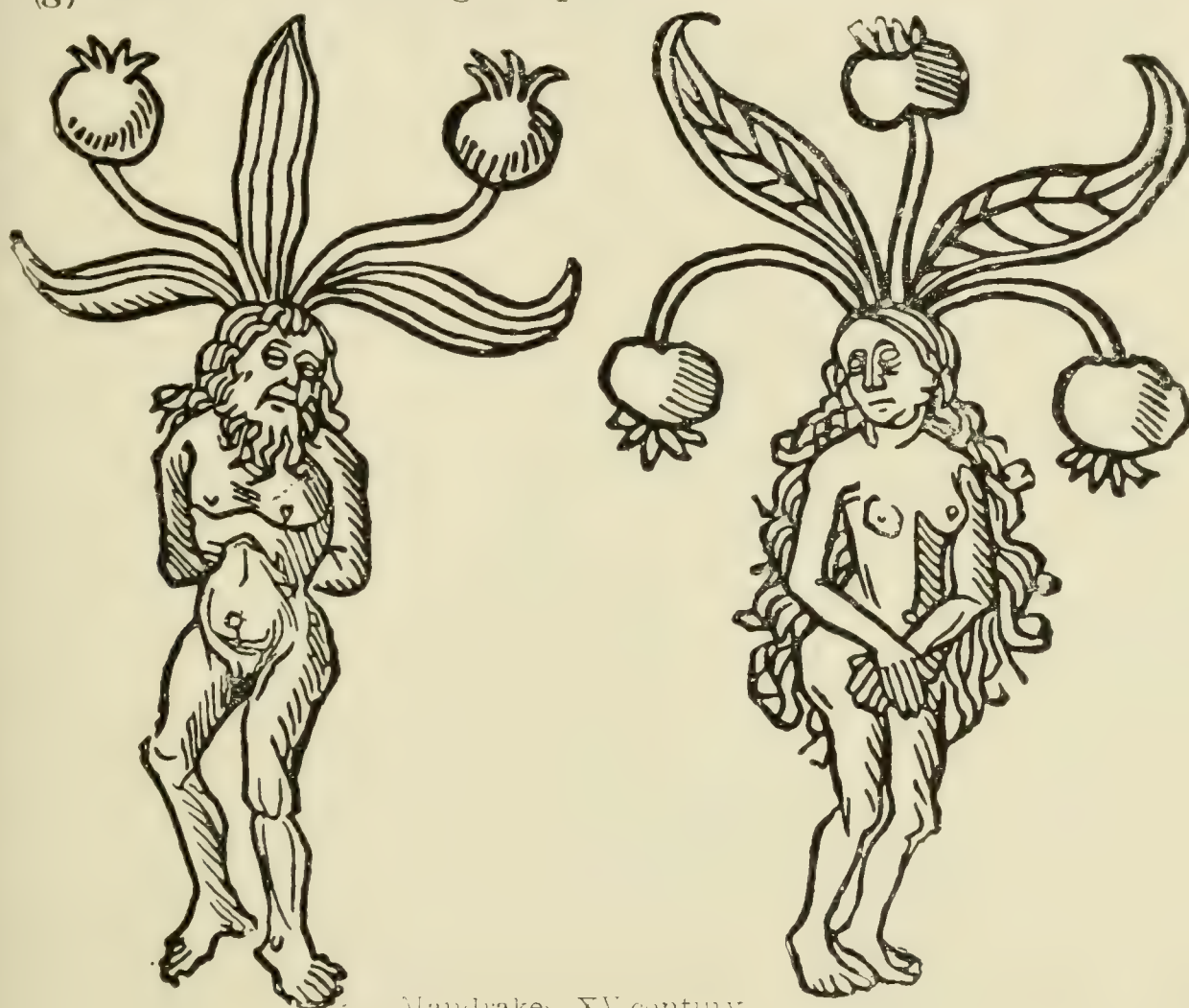




ST. ROCH  
Healing sufferers from the plague—XVI century



- (f) Relics and objects of interest associated with nurses.  
 (g) Relics of foundling hospitals.

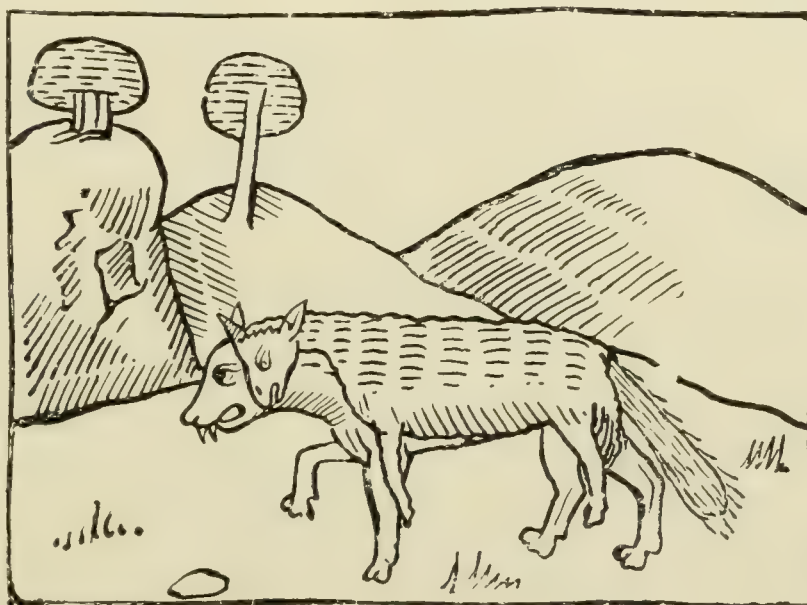


Mandrakes—XV century

### SECTION 9

Toxicology and Criminology:—

- (a) Specimens of rare and curious poisons.  
 (b) Historical objects connected with famous poisoning and other criminal cases.  
 (c) Curious methods of torture and execution.  
 (d) Improvised instruments used for criminal purposes.



"The wolf in sheep's clothing"  
 From a woodcut of the XVII century

### SECTION 10

Quackery:—

- (a) Antient and modern pictures, prints and relics of notorious quack doctors.



- (b) Antient and modern specimens of quack medicines, preparations and appliances.
- (c) Old bills, placards and pamphlets referring to quack medicines.

SECTION II

Adulteration of Foods and Drugs :—

- (a) Specimens showing the adulteration and falsification of drugs, medicines, foods, fabrics and other articles affecting health, or associated with medicine, pharmacy and allied sciences.



Louis Jacques Mandé Daguerre  
a pioneer of photography  
Born 1789. Died 1851

SECTION 12

Photography :—

- (a) Objects illustrating the invention and history of photography.
- (b) Early cameras and apparatus.
- (c) Daguerrotypes.
- (d) Portraits of the pioneers of photography.
- (e) Original papers and MSS. connected with photography.
- (f) Application of photography to medicine and surgery, X-ray photography.
- (g) Early and rare apparatus.
- (h) Curiosities of photography and its latest development.

## THE MARCH OF SCIENCE

“Without a scientific foundation no permanent super-structure can be raised. Does not experience warn us that **the rule of thumb is dead and that the rule of science has taken its place**; that to-day we cannot be satisfied with the crude methods which were sufficient for our forefathers, and that those great industries which do not keep abreast of the advance of science must surely and rapidly decline?”

*Extract from a speech by H.M. King George V. (when Prince of Wales) at the International Congress of Applied Chemistry, London, May 27, 1909*





WELLCOME CHEMICAL RESEARCH LABORATORIES  
KING STREET, LONDON (ENGLAND)

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

THE WELLCOME  
CHEMICAL RESEARCH LABORATORIES

FREDERICK B. POWER, PH.D., LL.D.

*Director of the Laboratories*

KING STREET, SNOW HILL, LONDON (ENG.)



# AWARDS

CONFERRED UPON THE  
WELLCOME CHEMICAL RESEARCH  
LABORATORIES  
AT INTERNATIONAL EXHIBITIONS

ST. LOUIS	ONE GRAND PRIZE
1904	THREE GOLD MEDALS

LIÉGE	ONE GRAND PRIZE
1905	ONE DIPLOMA OF HONOUR TWO GOLD MEDALS

MILAN	ONE GRAND PRIZE
1906	

LONDON	TWO GRAND PRIZES
(Franco-British)	
1908	

LONDON	ONE GRAND PRIZE
(Japan-British)	
1910	

BRUSSELS	THREE GRAND PRIZES
1910	ONE DIPLOMA OF HONOUR

FOR  
CHEMICAL AND PHARMACOGNOSTICAL RESEARCH  
ETC., ETC.

# THE WELLCOME CHEMICAL RESEARCH LABORATORIES

## ORGANISATION, EQUIPMENT AND DEVELOPMENT

THOSE who have observed the progress of events in Great Britain during the last decade cannot fail to have been impressed with the remarkable developments and achievements by which it has been attended, especially in the domains of the chemical, physical and biological sciences. The discovery within the past few years of several new elements in the atmosphere, and of radioactive substances, the liquefaction, and even solidification, of gases that were hitherto regarded as permanent, the synthesis of several important organic compounds, the isolation of new substances, and the more precise characterisation of those previously known, together with the perfection of chemical processes and the applications of electricity in chemical and metallurgical operations, are but a few examples of the contributions to knowledge and the industrial progress which have signalised the closing years of the past, and the beginning of the new, century.

The march  
of science

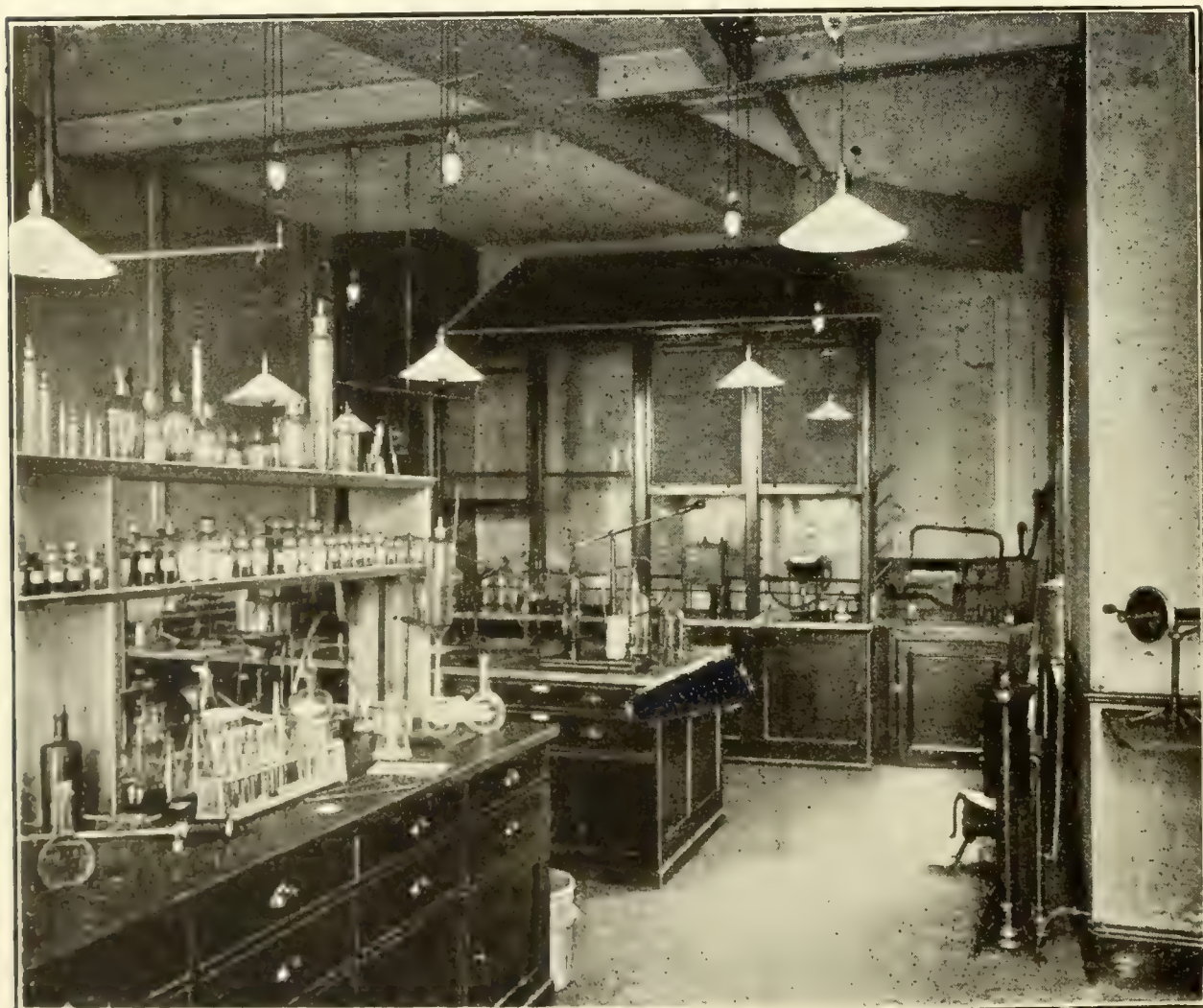
The spirit of research has, in fact, now become so diffused as to have penetrated into almost every department of human knowledge and activity. With a broader recognition of its usefulness, and even of its necessity, as an element of progress, research is no longer confined to institutions of learning, but has proved to be a quite indispensable factor in its relation to industrial pursuits, as well as for the study of those important problems in medical science which are so intimately associated with the health and happiness of mankind. It has indeed been truly said that "without a knowledge of the constitution or structure of the molecules which go to make up the substances employed as remedies, therapeutics, or the administration of these remedies, can never be an exact science. Thus the research chemist may contribute, though indirectly, his share towards placing medicine upon a real and scientific basis."

The spirit  
of research





ONE OF THE LABORATORIES—FIRST FLOOR



ONE OF THE LABORATORIES—SECOND FLOOR



It is worthy of note that the year 1896 was marked by the establishment in Great Britain of at least three laboratories devoted exclusively to scientific research—namely, the Davy-Faraday Research Laboratory connected with the Royal Institution, which was formally inaugurated in December, 1896; the new Research Laboratory of the Royal College of Physicians of Edinburgh, which was formally opened in November, 1896; and the WELLCOME CHEMICAL RESEARCH LABORATORIES, which were established in the summer of 1896.

British  
Chemical  
Research  
Laboratories

The scope of these laboratories and the directions in which research is conducted in them, naturally differ. The first-mentioned, for example, is more especially of an academic character, and is therefore devoted to somewhat abstract investigations in chemistry and physics; the second is stated to have for its primary object the examination of morbid specimens and material, the study of zymotic diseases, and, in general, bacteriological, physiological and pathological work; while the third, the WELLCOME CHEMICAL RESEARCH LABORATORIES, are designed for investigations in both pure and applied chemistry, and, in the latter instance, with special reference to the study of that large class of both organic and inorganic compounds which are employed as medicinal agents in the treatment of disease.

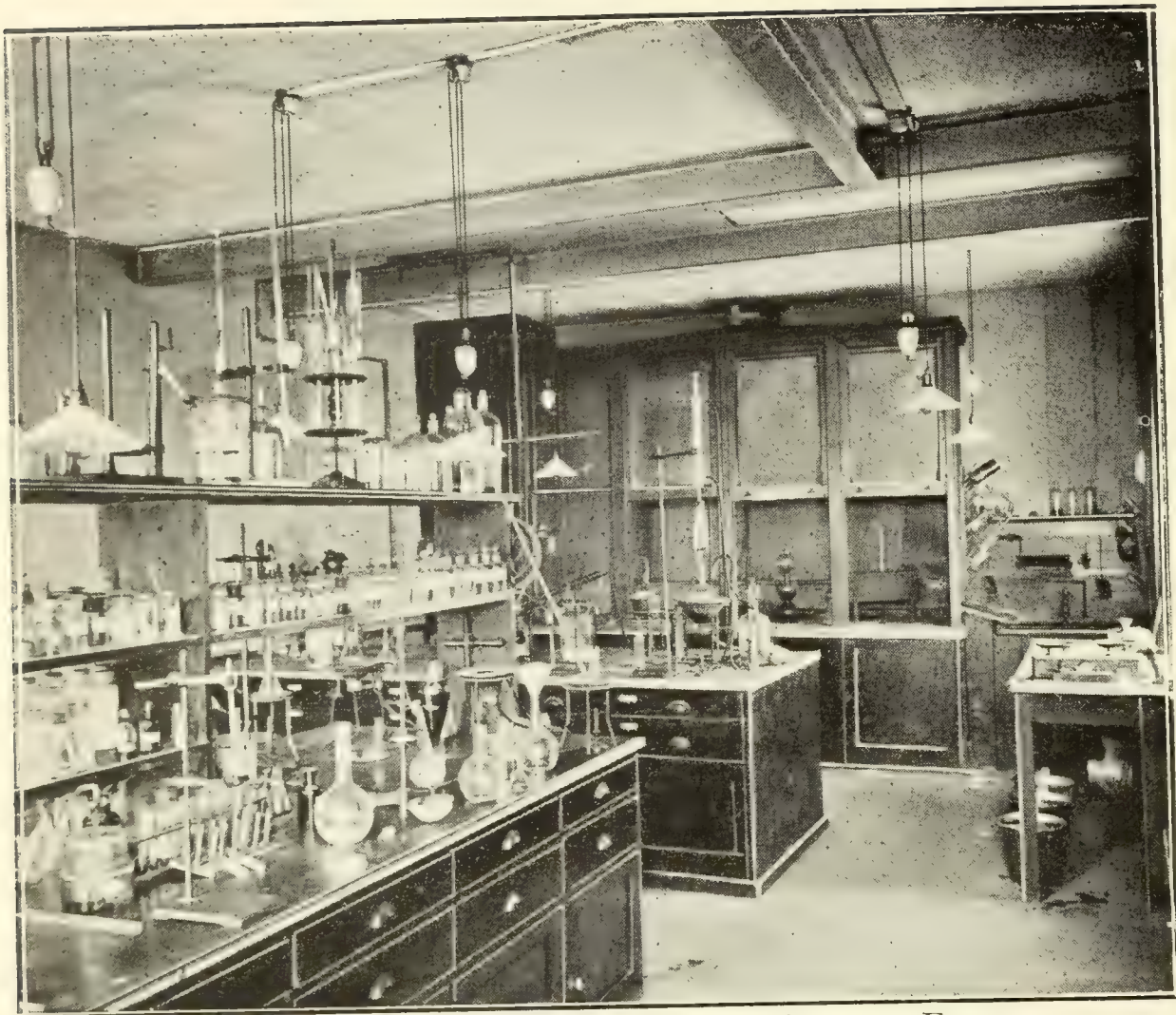
The  
Wellcome  
Chemical  
Research  
Laboratories

The importance of the work which it is the purpose to accomplish in these different, but more or less closely related, departments of science, is apparent, and is duly appreciated by those who recognise the deficiencies of existing knowledge.

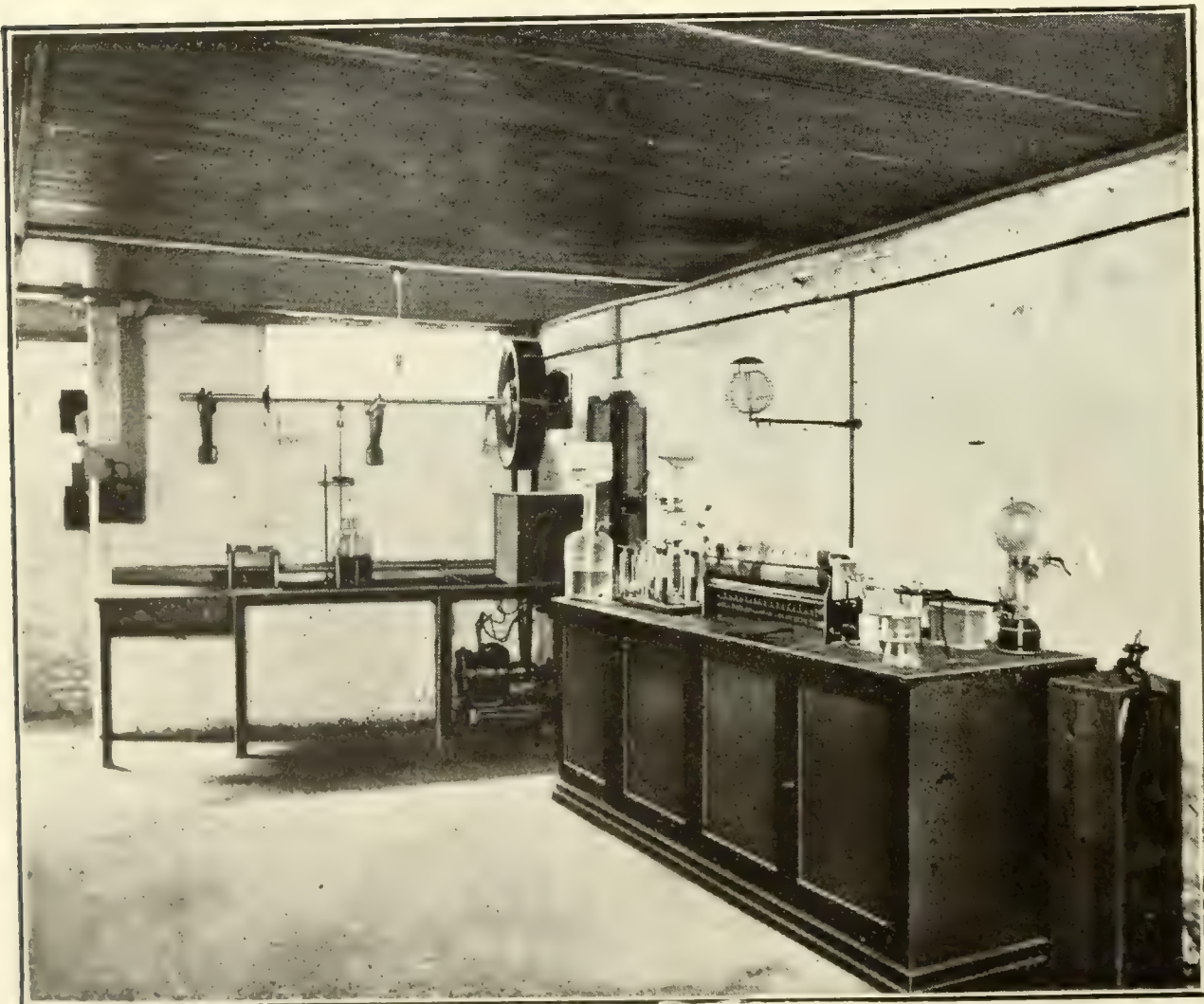
In response to numerous requests, it has been considered that a brief sketch of the WELLCOME CHEMICAL RESEARCH LABORATORIES, descriptive of their organisation, equipment and development would prove of interest to a considerable number who have not the opportunity of inspecting them.

The first announcement of Mr. Henry S. Wellcome's plan to establish the Chemical Research Laboratories





ONE OF THE LABORATORIES—THIRD FLOOR



THE COMBUSTION ROOM



which bear his name, was made on the occasion of a dinner given by him to Dr. Frederick B. Power, the present Director, at the Holborn Restaurant, London, on the evening of July 21, 1896. The occasion was a memorable one in many respects, for the gathering included a large number of distinguished representatives of the various sections of the scientific world. It was then explained by Mr. Wellcome that the work which he proposed to inaugurate was one which he personally had very much at heart, that it would be carried out on no selfish lines, but would be controlled and dictated with the highest regard for science. It was also made clear that the new Chemical Research Laboratories were to be entirely distinct from those of the Works of his firm, in which, as heretofore, research would also continue to be conducted. The expressions of appreciation of the high purpose and the scientific spirit which had actuated Mr. Wellcome in the development of such extended plans for chemical research, as manifested by various distinguished speakers on the occasion referred to, were indeed most auspicious, and fittingly commemorated the inauguration of the work that was to be undertaken.

Appreciation by  
distinguished  
scientists

The first home of the laboratories was in a building located at No. 42, Snow Hill, but it was soon found desirable to make considerable extensions. In order to accomplish this, it was decided that the laboratories should be transferred to a building of their own, of which they should have complete use and possession. Such premises were secured at No. 6, King Street, Snow Hill, where in a very central part of London, and amid surroundings replete with many of its most interesting historical associations, the laboratories are now located.

Location in  
central London

The building is a handsome, modern one of Venetian style of architecture, and comprises four stories and a basement. A view of it is represented on *page 296*.

On the ground floor of the building are the office of the Director, and the library, the latter being quite complete for the special requirements. It contains not only a



Reference  
library

considerable number of recent chemical and pharmacological works, but also complete sets of many journals, such as the *Journal of the Chemical Society*, *Berichte der deutschen chemischen Gesellschaft*, the *Chemical News*, *Journal of the Society of Chemical Industry*, etc. Files of many of the more important chemical, pharmaceutical and medical periodicals of England, America and Germany are also kept. As several very large and complete scientific and technical libraries are also at all times accessible to members of the staff, it is evident that the requirements in this direction are most abundantly supplied. In the library there is also a cabinet containing specimens of the various substances obtained in the course of laboratory investigations, which already form a collection of considerable interest.

Equipment of  
laboratories

The laboratories proper are located on the first, second and third floors of the building, and are represented on pages 300, 302. They are similar in their arrangement, are provided with gas and electricity for both illuminating and heating purposes, and completely equipped with all the necessary apparatus and appliances for conducting chemical investigations. There are pumps on each table for filtration under pressure, and special adaptations for vacuum distillations. A separate connection with the electric mains supplies the current for heating iron plates used for the distillation of ether and other similar liquids. Each laboratory is provided with fine analytical and ordinary balances, which are carefully protected from dust and moisture by tightly-fitting glass cases. There are also telephones on each floor, so that communication between the different laboratories or with the Director's office can be quickly effected.

The basement of the building, which is well-lighted by electricity, contains a combustion furnace and all the appliances for conducting ultimate analyses, whilst two other furnaces of the most approved construction are available in the laboratories; it also contains a large electric motor for working the shaking and stirring apparatus,

drug mill, etc., and a dark-room adapted for polarimetric or photographic work. A view of a portion of the combustion room is shown on *page* 302. In direct communication with the basement are dry and commodious vaults, which afford ample room for the storage of the heavier chemicals and the reserve stock of glassware, etc. By means of a small lift, articles may be conveniently transported from the basement to any floor of the building.

From this brief description, and the accompanying photographic illustrations, it will be seen that the WELLCOME CHEMICAL RESEARCH LABORATORIES are unique in their appointments and in the purpose they are designed to accomplish.

It is perhaps, hardly necessary to explain that some of the problems which engage the time and attention of members of the staff—which comprises a number of highly-skilled and experienced chemists—are of technical application, having reference to the perfection of the chemical products of Burroughs Wellcome & Co. These naturally do not always afford material for publication, and many other difficult researches extend over considerable periods of time. Nevertheless, a considerable number of publications, embodying the results of original work contributed to various scientific societies, which are now consecutively numbered, have already been issued.

Original  
work and  
scientific  
publications

Other investigations in progress will, from time to time, form the subjects of future communications.

Although too short a period has elapsed, since the establishment of these laboratories, to afford much material for a historical retrospect, their present measure of success may be considered to have justified the expectations of their founder and of those who are in sympathy with the work which they aim to accomplish.



SCIENTIFIC PAPERS PUBLISHED BY  
THE WELLCOME CHEMICAL RESEARCH  
LABORATORIES

1. SOME NEW GOLD SALTS OF HYOSCINE, HYOSCYAMINE AND ATROPINE
2. THE CHARACTERS AND METHODS OF ASSAY OF THE OFFICIAL HYPOPHOSPHITES
3. NOTE ON THE MYDRIATIC ALKALOIDS
4. PREPARATION OF ACID PHENYLIC SALTS OF DIBASIC ACIDS
5. A NEW METHOD FOR THE ANALYSIS OF COMMERCIAL PHENOLS
6. THE ASSAY OF PREPARATIONS CONTAINING PILOCARPINE
7. PILOCARPINE AND THE ALKALOIDS OF JABORANDI LEAVES
8. A NEW GLUCOSIDE FROM WILLOW BARK
9. THE CONSTITUTION OF PILOCARPINE—Part I
10. THE COMPOSITION AND DETERMINATION OF CERIUM OXALATE
11. RESEARCHES ON MORPHINE—Part I
12. OBSERVATIONS RELATING TO THE CHEMISTRY OF THE BRITISH PHARMACOPŒIA
13. MERCUROUS IODIDE
14. THE COMPOSITION OF BERBERINE PHOSPHATE
15. A CONTRIBUTION TO THE PHARMACOGNOSY OF OFFICIAL STROPHANTHUS SEED
16. THE CHEMISTRY OF THE JABORANDI ALKALOIDS
17. A NEW ADMIXTURE OF COMMERCIAL STROPHANTHUS SEED
18. RESEARCHES ON MORPHINE—Part II
19. THE CONSTITUTION OF PILOCARPINE—Part II
20. THE CHEMISTRY OF THE BARK OF ROBINIA PSEUD-ACACIA, *Linn.*
21. THE ANATOMY OF THE BARK OF ROBINIA PSEUD-ACACIA, *Linn.*
22. A SOLUBLE MANGANESE CITRATE AND COMPOUNDS OF MANGANESE WITH IRON
23. THE CHEMICAL CHARACTERS OF SO-CALLED IODO-TANNIN COMPOUNDS
24. THE CONSTITUTION OF PILOCARPINE—Part III
25. A NEW SYNTHESIS OF  $\alpha$ -ETHYLTRICARBALLYLIC ACID
26. THE CONSTITUENTS OF THE ESSENTIAL OIL OF ASARUM CANADENSE, *Linn.*
27. DERIVATIVES OF GALLIC ACID
28. THE OCCURRENCE OF SALICIN IN DIFFERENT WILLOW AND POPLAR BARKS

SCIENTIFIC PAPERS—*continued*

29. THE CONSTITUENTS OF COMMERCIAL CHRYSAROBIN
30. THE CONSTITUENTS OF AN ESSENTIAL OIL OF RUE
31. METHYL  $\beta$ -METHYLHEXYL KETONE
32. INTERACTION OF KETONES AND ALDEHYDES WITH ACID CHLORIDES
33. THE ANATOMY OF THE STEM OF DERRIS ULIGINOSA, *Benth.*
34. THE CHEMISTRY OF THE STEM OF DERRIS ULIGINOSA, *Benth.*
35. THE CONSTITUTION OF PILOCARPINE—Part IV
36. PREPARATION AND PROPERTIES OF DIMETHYLGLYOXALINE AND DIMETHYLPYRAZOLE
37. THE ELECTROLYTIC REDUCTION OF PHENO- AND NAPHTHOMORPHOLONES
38. CHEMICAL EXAMINATION OF KÔ-SAM SEEDS (*BRUCEA SUMATRANA, Roxb.*)
39. COMPARATIVE ANATOMY OF THE BARKS OF THE SALICACEÆ—Part I
40. THE CONSTITUTION OF CHRYSOPHANIC ACID AND OF EMODIN
41. THE CONSTITUTION OF EPINEPHRINE
42. A LÆVO-ROTATORY MODIFICATION OF QUERCITOL
43. THE CONSTITUENTS OF THE ESSENTIAL OIL OF CALIFORNIAN LAUREL
44. SOME DERIVATIVES OF UMBELLULONE
45. THE CONSTITUENTS OF CHAULMOOGRA SEEDS
46. THE CONSTITUTION OF CHAULMOOGRIC ACID—Part I
47. CHEMICAL EXAMINATION OF CASCARA BARK
48. CHEMICAL EXAMINATION OF GYMNEMA LEAVES
49. THE RELATION BETWEEN NATURAL AND SYNTHETICAL GLYCERYL-PHOSPHORIC ACIDS
50. GYNOCARDIN, A NEW CYANOGENETIC GLUCOSIDE
51. PREPARATION AND PROPERTIES OF 1 : 4 : 5—TRIMETHYLGLYOXALINE
52. THE CONSTITUTION OF PILOCARPINE—Part V
53. THE CONSTITUTION OF BARBALOIN—Part I
54. THE CONSTITUENTS OF THE SEEDS OF HYDNOCARPUS WIGHTIANA, *Blume*, AND OF HYDNOCARPUS ANTHELMINTICA, *Pierre*
55. THE CONSTITUENTS OF THE SEEDS OF GYNOCARDIA ODORATA, *R.Br.*
56. THE SYNTHESIS OF SUBSTANCES ALLIED TO EPINEPHRINE
57. CHEMICAL EXAMINATION OF GRINDELIA
58. CHEMICAL EXAMINATION OF AETHUSA CYNAPIUM, *Linn.*
59. PREPARATION AND PROPERTIES OF SOME NEW TROPEINES
60. THE CONSTITUENTS OF THE ESSENTIAL OIL FROM THE FRUIT OF PITTOSPORUM UNDULATUM, *Vent*



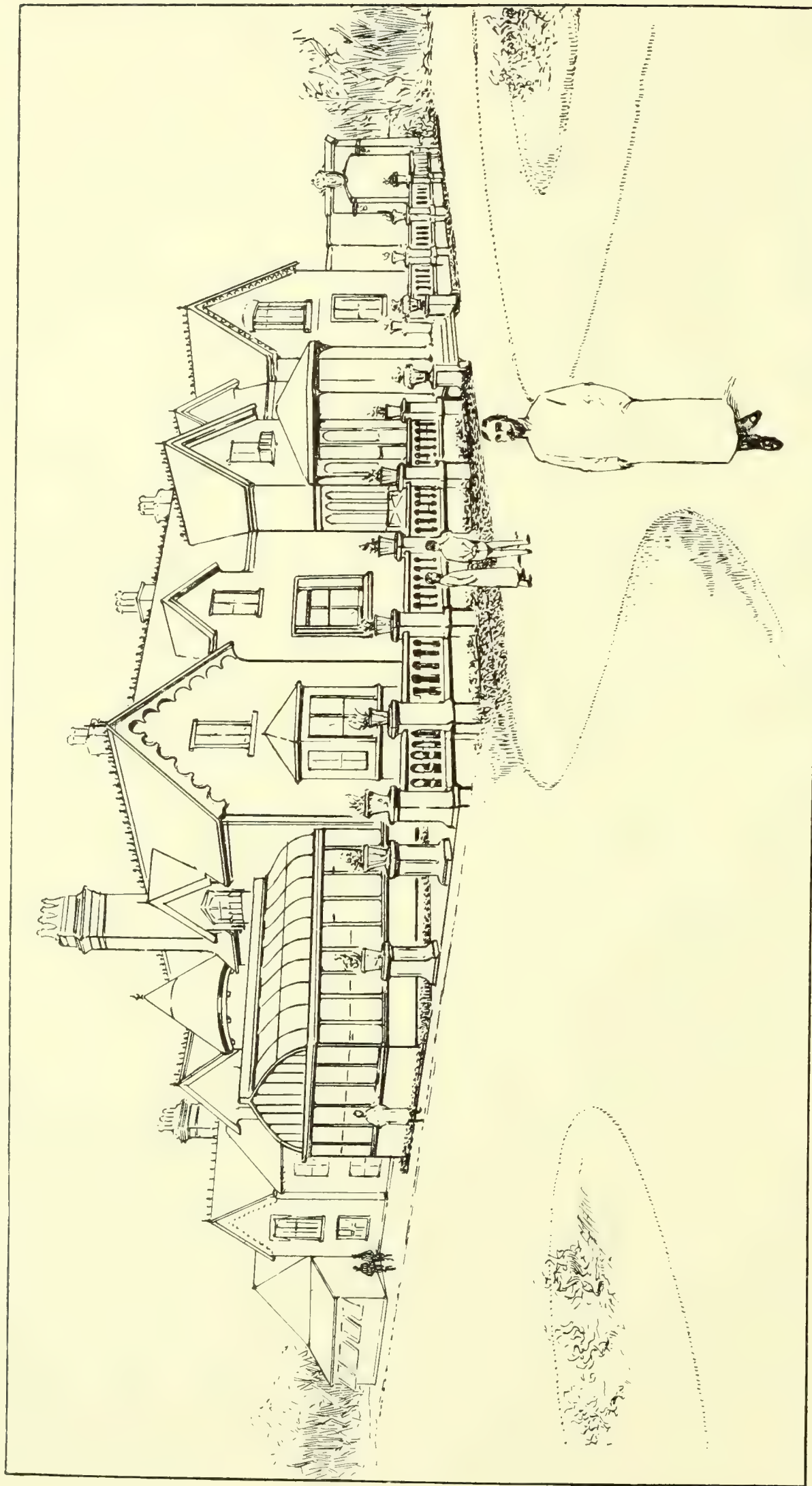
SCIENTIFIC PAPERS—*continued*

61. THE CONSTITUTION OF UMBELLULONE
62. LONDON BOTANIC GARDENS
63. CHEMICAL AND PHYSIOLOGICAL EXAMINATION OF THE FRUIT OF  
CHAILLETIA TOXICARIA
64. CHEMICAL EXAMINATION OF ERIODICTYON
65. THE BOTANICAL CHARACTERS OF SOME CALIFORNIAN SPECIES OF  
GRINDELIA
66. THE RELATIONS BETWEEN NATURAL AND SYNTHETICAL GLYCERYL-  
PHOSPHORIC ACIDS—Part II
67. THE CONSTITUTION OF UMBELLULONE—Part II
68. THE REDUCTION OF HYDROXYLAMINODIHYDROUMBELLULONEOXIME
69. THE CONSTITUTION OF CHAULMOOGRIC AND HYDNOCARPIC ACIDS
70. THE CONSTITUENTS OF THE ESSENTIAL OIL OF AMERICAN  
PENNYROYAL
71. THE CONSTITUTION OF HOMO-ERIODICTYOL
72. THE INTERACTION OF METHYLENE CHLORIDE AND THE SODIUM  
DERIVATIVE OF ETHYL MALONATE
73. CHEMICAL EXAMINATION OF THE FRUIT OF BRUCEA ANTIDYSENTERICA,  
*Lam.*
74. CHEMICAL EXAMINATION OF THE BARKS OF BRUCEA ANTIDYSENTERICA,  
*Lam.*, AND BRUCEA SUMATRANA, *Roxb.*
75. CHEMICAL EXAMINATION OF GRINDELIA—Part II
76. CHEMICAL EXAMINATION OF LIPPIA SCABERRIMA, *Sonder* ("Beukess  
Boss")
77. CHEMICAL EXAMINATION OF THE ROOT AND LEAVES OF MORINDA  
LONGIFLORA
78. THE CONSTITUENTS OF THE ESSENTIAL OIL OF NUTMEG
79. CHEMICAL EXAMINATION OF MICROMERIA CHAMISSONIS (*Yerba  
Buena*)
80. THE CONSTITUTION OF UMBELLULONE—Part III
81. THE CONSTITUENTS OF OLIVE LEAVES
82. THE CONSTITUENTS OF OLIVE BARK
83. CHEMICAL EXAMINATION OF IPOMŒA PURPUREA
84. THE CHARACTERS OF OFFICIAL IRON ARSENATE
85. PREPARATION OF A SOLUBLE FERRIC ARSENATE
86. THE CONSTITUENTS OF THE EXPRESSED OIL OF NUTMEG
87. CHEMICAL EXAMINATION AND PHYSIOLOGICAL ACTION OF NUTMEG
88. SOME OBSERVATIONS REGARDING "OLEUROPEIN" FROM OLIVE  
LEAVES

SCIENTIFIC PAPERS—*continued*

- 89.<sup>m</sup> CHEMICAL EXAMINATION OF ERIODICTYON—Part II
90. THE CONSTITUENTS OF THE BARK OF PRUNUS SEROTINA
91. THE CONSTITUENTS OF THE RHIZOME OF APOCYNUM ANDROSAEMIFOLIUM
92. *iso*-AMYGDALIN, AND THE RESOLUTION OF ITS HEPTA-ACETYL DERIVATIVE
93. THE ACTION OF NITRIC ACID ON THE ETHERS OF AROMATIC HYDROXYALDEHYDES
94. THE SYNTHESIS OF SUBSTANCES ALLIED TO COTARNINE
95. CHEMICAL EXAMINATION OF ELATERIUM AND THE CHARACTERS OF ELATERIN
96. THE TESTS FOR PURITY OF QUININE SALTS
97. THE CONFIGURATION OF TROPINE AND  $\Psi$ -TROPINE AND THE RESOLUTION OF ATROPINE
98. THE CONSTITUENTS OF THE FRUIT OF ECBALLIUM ELATERIUM
99. SYNTHESSES IN THE EPINEPHRINE SERIES
100. CHEMICAL EXAMINATION OF JALAP
101. THE CONSTITUENTS OF RUMEX ECKLONIANUS
102. THE CONSTITUENTS OF COLOCYNTH
103. THE CONSTITUENTS OF RED CLOVER FLOWERS
104. CHEMICAL EXAMINATION OF PUMPKIN SEED
105. CHEMICAL EXAMINATION OF WATERMELON SEED
106. CHEMICAL EXAMINATION OF ORNITHOGALUM THYRSOIDES
107. THE CONSTITUENTS OF THE FLOWERS OF TRIFOLIUM INCARNATUM
108. THE CONSTITUENTS OF THE LEAVES OF PRUNUS SEROTINA
109. SYNTHESIS OF COTARNINE
110. NOTE ON GYNOCARDINE AND GYNOCARDASE
111. CHEMICAL EXAMINATION OF THE TUBEROUS ROOT OF IPOMŒA HORSFALLIÆ
112. THE RESOLUTION OF BENZOYLOSCINE
113. NOTE ON THE CONSTITUTION OF  $\alpha$ -ELATERIN
114. THE CONSTITUENTS OF LEPTANDRA
115. THE CONSTITUTION OF ERIODICTYOL OF HOMOERIODICTYOL, AND OF HESPERITIN
116. THE SYNTHESIS OF 2 : 4 : 6 - TRIMETHOXYPHENYL - 3 : 4 - DIMETHOXYSTYRYL KETONE





WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

HERNE HILL, LONDON (ENGLAND)

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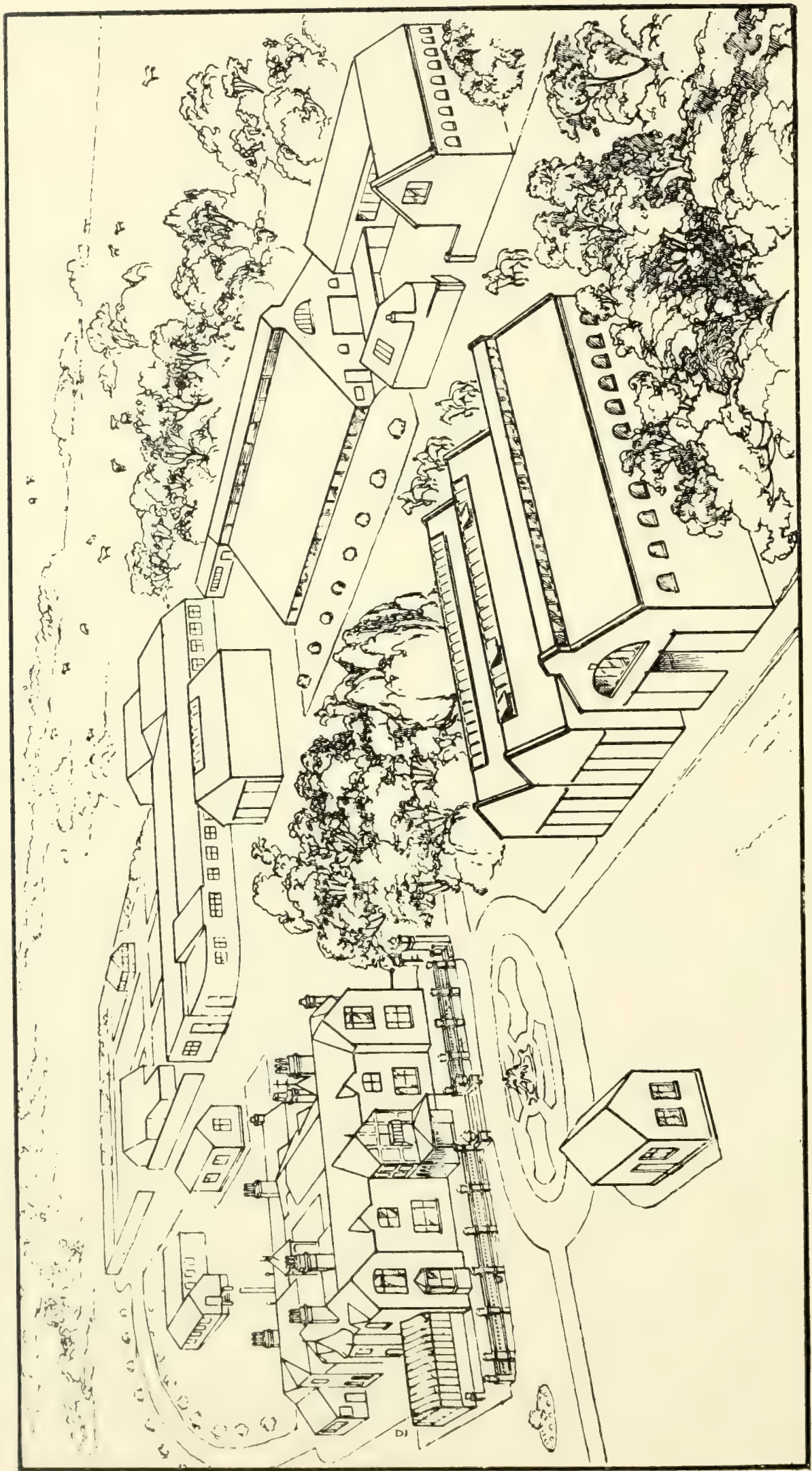
THE WELLCOME  
PHYSIOLOGICAL RESEARCH  
LABORATORIES

H. H. DALE, M.A., M.D.

*Director*

BROCKWELL HALL, HERNE HILL, LONDON (ENG.)





BIRD'S-EYE VIEW OF THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

# AWARDS

CONFERRED UPON THE  
WELLCOME PHYSIOLOGICAL RESEARCH  
LABORATORIES

AT INTERNATIONAL EXHIBITIONS

ST. LOUIS	ONE GRAND PRIZE
1904	ONE GOLD MEDAL

LIÉGE	ONE GRAND PRIZE
1905	TWO GOLD MEDALS

MILAN	ONE GRAND PRIZE
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LONDON	TWO GRAND PRIZES
(Franco-British)	
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LONDON	ONE GRAND PRIZE
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1910	

BRUSSELS	THREE GRAND PRIZES
1910	ONE DIPLOMA OF HONOUR

FOR  
PHYSIOLOGICAL RESEARCH AND PREPARATIONS  
ETC., ETC.



## THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

THE activities of the Wellcome Physiological Research Laboratories cover a wide field of therapeutic investigation. The production of Anti-Sera and of bacterial preparations for therapeutic inoculation, and the researches in bacteriology and the mechanism of immunity necessitated by the progressive development of this comparatively new department of therapeutics, have been carried on side by side with investigations into the mode of action and the nature of the active principles of drugs of animal and vegetable origin, and the production by synthesis of substances identical with, or related to, the naturally-occurring principles, in chemical structure and pharmacological action. Incidental to this pharmacological work has been the development of methods for controlling and standardising, by physiological means, the activity of potent drugs to which chemical methods of assay are not applicable.

### ANTI-SERA

A large series of Anti-Sera is now available for therapeutic use, and many have been first produced in these Laboratories. They may be classified into Antitoxic sera, possessing the power of neutralising the soluble toxins produced in artificial culture by certain organisms, or elaborated in the poison glands of animals; and Bactericidal sera which are obtained by immunising horses against the actual bacterial substance of such pathogenic organisms as do not form soluble toxins. Early representatives of the two classes were Diphtheria Antitoxic Serum and Anti-streptococcus Serum, and these have maintained their position as the most widely and successfully used sera of their respective classes. These Laboratories were pioneers in the production of these sera in the British Empire, and produced the first Anti-Diphtheria Serum used in the United States of America.

Pioneer  
products of  
serum therapy

## DIPHTHERIA ANTITOXIC SERUM, 'WELLCOME'

Since the foundation of the Wellcome Physiological Research Laboratories, a number of pamphlets, leaflets and reports dealing with therapeutic sera have been issued in connection therewith.

In the early editions, the origin, history and development of serum therapy were given, as well as an explanation of the meaning of the expression "antitoxin unit." It is scarcely necessary to repeat that the antitoxin unit adopted at the Wellcome Physiological Research Laboratories is the Ehrlich-Behring unit. It is not intended in these notes to take into view any of these aspects, but merely to bring up to date and present, in a succinct form, the progress of the treatment and the results obtained by means of it in more recent years. Diphtheria Antitoxic Serum is standardised by Ehrlich's method. In its earlier form the unit was based upon the power of completely neutralising the local as well as the general effects of the minimum dose of a given specimen of diphtheria toxin which sufficed to kill, in 48 hours, a guinea pig weighing 250 grammes. The quantity which just sufficed for this was said to contain one-tenth of a unit. Thus, if 0.01 c.c. just completely protected, the serum was said to contain 10 units per c.c.

Antitoxin  
unit

Samples of serum, carefully standardised by this method in the early days of its introduction, having been preserved, it soon became known that one-tenth of a unit of serum would not protect against ten times the minimal fatal dose of every filtered culture. An explanation of this curious fact has been put forward by Ehrlich. The filtered culture contains, besides the specific toxin, other bodies, named by him "toxoids," which, while in moderate doses incapable of causing death, have yet the power of combining with the antitoxin and rendering this inert. The number of minimal fatal doses which one-tenth of a unit of serum will neutralise depends, therefore, on the ratio of toxoids to toxin in the filtrate. For the purpose of testing serum, therefore, it is necessary to use a filtrate,

Toxoids  
in filtered  
cultures



the neutralising capacity of which has been ascertained by careful titration with standard diphtheria antitoxic serum. This standard has remained unaltered throughout, thanks to the fact that some of the earliest serum tested has been carefully preserved.

The new  
method

In May, 1897, a change in the method of standardising serum was introduced by Ehrlich. The presence or absence of a local swelling at the seat of injection is no longer taken as the criterion of neutralisation, but the death or survival of the animal—four days being taken as the limit; and the test dose of filtrate is no longer that which is neutralised by one-tenth of a unit, but that which just suffices to kill the animal within four days when mixed with a whole unit of serum. This change did not introduce any alteration of the standard, because the test dose is ascertained by a series of experiments in which a unit of the standard serum is employed. It has the great advantage of being a purely objective method. For instance, no discrepancies can arise from difference of opinion as to what is to be considered as the smallest local swelling worthy of notice. All errors of measurement, also, are reduced ten per cent.

#### STATISTICS OF TREATMENT BY DIPHTHERIA ANTITOXIC SERUM

Statistics  
of  
diphtheria

Amongst the most valuable English statistics on the subject are those compiled by the Medical Officers of the Metropolitan Asylums Board; and from them may be gathered the following figures: In 1894, only a small number of cases were treated with antitoxin. In 1895, 61·8 per cent., and in 1896, 71·3 per cent., of the total cases were treated with antitoxin, it not having been employed in moribund or hopeless cases, nor in those which were doubtful in nature, or so mild as not to require any specific treatment. The accompanying table shows clearly a regular percentage decrease in mortality *pari passu* with a regular increase in the percentage of cases treated with antitoxin:—

CASES OF DIPHTHERIA TREATED IN THE HOSPITALS OF  
THE METROPOLITAN ASYLUMS BOARD

Year					Mortality. Per cent. of all cases
1890-93 ...	...	...	...	...	30·4
1894 ...	...	...	...	...	29·6
1895 ...	...	...	...	...	28·1
1896 ...	...	...	...	...	25·9
1897 ...	...	...	...	...	20·4
1898 ...	...	...	...	...	17·5
1899 ...	...	...	...	...	15·4
1900 ...	...	...	...	...	12·9
1901 ...	...	...	...	...	12·6
1902 ...	...	...	...	...	11·8
1903 ...	...	...	...	...	10·2
1904 ...	...	...	...	...	10·9
1905 ...	...	...	...	...	9·0
1906 ...	...	...	...	...	10·4
1907 ...	...	...	...	...	10·9

The Colchester epidemic in the summer of 1901 furnishes evidence of especial weight.\* Up to a certain date, the cases in hospital were treated with antiseptic sprays. These in all amounted to 81, of whom 21 died, giving a case mortality of 25·9 per cent. After this date, all the cases were treated with antitoxin without antiseptic spray, and of 119 so treated, 7 died. The case mortality of this group was therefore 5·8 per cent.

The  
Colchester  
epidemic

The inference that antitoxin thus saved many lives is much strengthened by the fact that of 37 cases treated at home before the date indicated, 10·8 per cent. died, whilst of 48 cases treated at home after this date, 14·5 per cent. died. This concurrent evidence clearly shows that the severity of the disease was not declining at the time when such good results were being obtained at hospital with antitoxin.

\* *Journal of Hygiene*, April 1, 1902



## CURATIVE AND PROPHYLACTIC DOSES OF DIPHTHERIA ANTITOXIC SERUM

Animal  
experiments

Experiments on animals have shown that the amount of antitoxin which is necessary to save life increases at a rapidly accelerating rate, according to the length of time which elapses between the injection of the diphtheria virus and the administration of the curative serum, and this is amply confirmed by the results of experience in hospitals. Thus Wernicke and Behring, having determined the amount of antitoxic serum necessary to save from death a guinea pig which had immediately before been injected subcutaneously with a lethal dose of diphtheria toxin, found that ten times this amount was required to effect a cure if this administration was deferred until eight hours after the injection of the toxin; whilst twenty-four hours afterwards, fifty times the initial quantity was necessary.

The efficacy of antitoxin given early in the disease, and the urgent necessity of beginning the treatment at the earliest possible moment, are well illustrated by the following statistics from the Brook Hospital, published in the Metropolitan Asylums Board Report for 1902 :—

Day of the disease on which treatment commenced	Mortality per cent.					
	18	1898	1899	1900	1901	1902
First ... ..	·0	·0	·0	·0	·0	·0
Second ... ..	5·4	5·0	3·8	3·6	4·1	4·6
Third ... ..	11·5	14·3	12·2	6·7	11·9	10·5
Fourth ... ..	19·0	18·1	20·0	14·9	12·4	19·8
Fifth ... ..	21·0	22·5	20·4	21·2	16·6	19·4

The serum from normal horses may cause rashes and rise of temperature in susceptible individuals, but apart from this the only limit to the administration of antitoxin is the bulk of the fluid in which it is contained. Therefore, a large dose should be given at the earliest possible moment, whenever there is reason to suspect diphtheria; and in cases which progress unfavourably, the treatment may be repeated in about six hours, giving at least double the initial dose.

Limit of dose

Repeated injections

Far less, however, is to be expected from repeated injections at intervals than from one full dose given at the outset of the attack. In no case should either the administration of antitoxin or the repetition of the dose be delayed until the result of a bacteriological examination has been made known.

**CURATIVE DOSE.**—The dose for a case of moderate severity should not be less than 2000 units, and in severe cases 4000 units at least should be given at once, and larger doses are recommended by many authorities. These doses should be given irrespective of age, because diphtheria is very fatal to young children. If any difference were to be made, adults would have the smaller doses, as the prognosis in diphtheria improves with the age of the patient.

Dosage irrespective of age

As the question of the keeping-quality of sera is frequently raised, it may be stated generally that, provided they are kept in a cool place at a fairly constant temperature, and protected from light, these sera may be relied upon to remain practically unaltered for at least a year from the date of issue. They are issued in phials hermetically-sealed in the blow-pipe flame, a method which greatly favours this result.

Keeping-quality of serum

**PROPHYLACTIC DOSE.**—Protective injections, of at least 1000 units, may be administered to the rest of the family whereof one member has been attacked with diphtheria. It must be borne in mind, however, that the prophylactic action gives only a temporary protection against attack to the person so treated, the protection thus conferred lasting probably about three weeks at the most. The whole of the contents of one phial may be injected in each case. It

Prophylaxis



should be carefully noted that, when once a phial is opened, it is highly undesirable, owing to risk of contamination, to reserve a portion of the contents for a future occasion. It should all be used at once on one or more patients.

## BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA

The injection of antitoxin at the earliest possible moment in the course of the disease may be a matter of such importance to the patient that this should be done on the clinical evidence alone where the diagnosis is doubtful; but immediate steps should be taken to confirm the diagnosis by bacteriological methods.

## ON SERUM ERUPTIONS

In some cases, the administration of a curative serum is followed by rashes and transitory rise of temperature; occasionally by pains and swellings in the joints. These accidents have been shown to be also caused by normal horse serum, so that they are not to be attributed to the anti-bodies in the serum. The introduction of more highly potent serum, allowing a diminution of the bulk to be injected, has rendered these complications less frequent. They arise for the most part during convalescence, and do not appear to have resulted, in any case, in death, though they have doubtless sometimes retarded recovery.

The following account of this subject, by Dr. Arthur Stanley,\* deals with 500 cases of diphtheria at the North-Western Hospital of the Metropolitan Asylums Board, all of which were treated with antitoxin: "The diagnosis of doubtful cases was verified by bacteriological examination. The total number of deaths in the series was 80, a death-rate of 16 per cent. The antitoxin was injected in quantities usually of 4000 Behring antitoxin units immediately after admission, but varied from 1000 to 30,000 units according to the severity of the case and the time of admission after onset. No constant relation between the quantity of

Normal horse  
serum

Diphtheria  
antitoxin  
injections

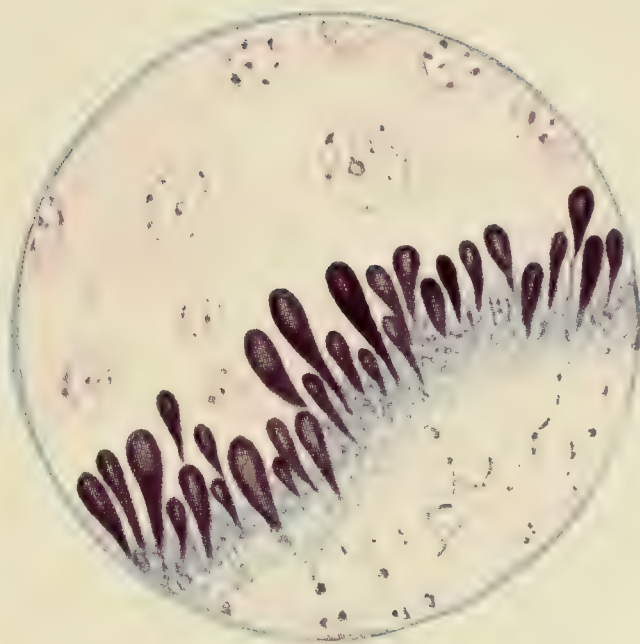
\* *British Medical Journal*, February 15, 1902

No. 1

No. 1. ACTINOMYCOSIS OF  
TONGUE

showing the Ray fungus  
stained by Gram's method  
and Eosin

('Soloid' Gentian Violet,  
'Soloid' Gram's Iodine Solution  
and 'Soloid' Eosin)



No. 2

No. 2. SPIRILLUM OF  
RELAPSING FEVER

stained by Giemsa's method  
('Soloid' Eosin-Azur)



No. 3

No. 3. TRYPANOSOME OF  
TSE-TSE FLY DISEASE  
stained by Leishman's method  
('Soloid' Romanowsky Stain  
[Leishman's Powder])



REPRODUCTIONS IN ACTUAL COLOURS OF PREPARATIONS  
STAINED WITH 'SOLOID' MICROSCOPIC STAINS

(Magnification 1000 diameters)

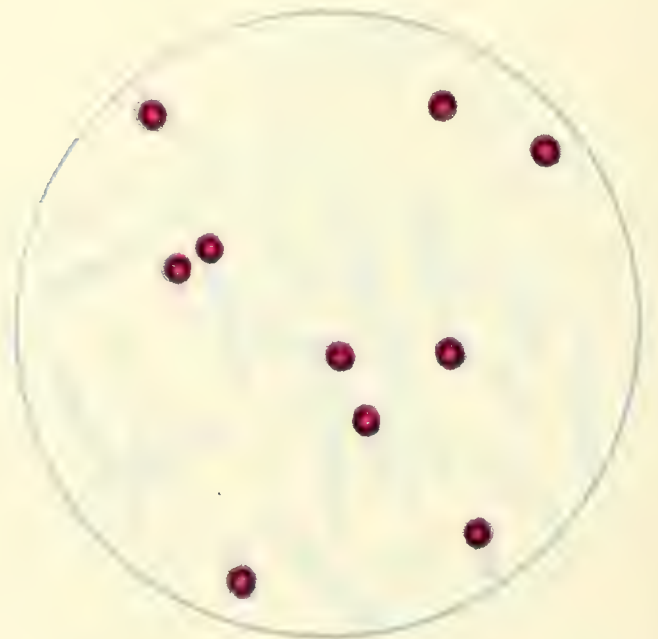


No. 4

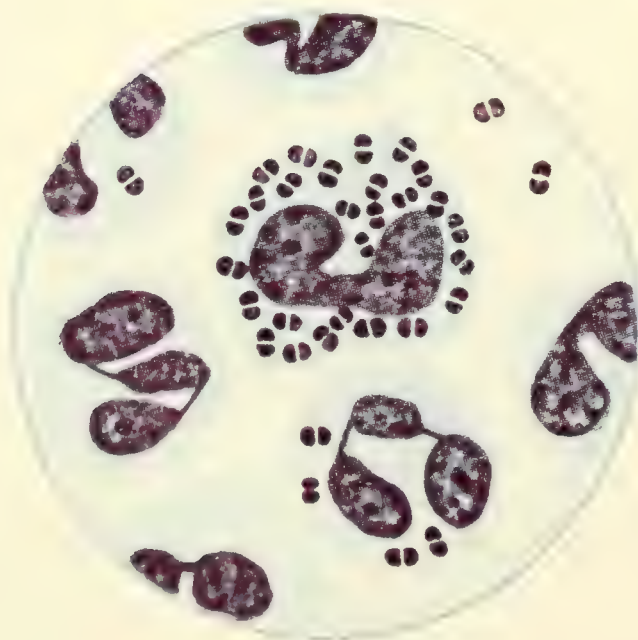


No. 4. *BACILLUS ACNES*  
stained with  
Methyl Violet  
(‘Soloid’ Methyl Violet)  
(Aerobic Culture on  
Acid Serum Agar, showing  
long forms)

No. 5. *BACILLUS TETANI*  
showing spores  
stained by Moeller’s method  
(‘Soloid’ Fuchsine [Basic] and  
‘Soloid’ Methylene Blue)



No. 6



No. 6. *GONOCOCCUS INTRA*  
stained with  
Carbol Thionin Blue  
(‘Soloid’ Thionin Blue)

REPRODUCTIONS IN ACTUAL COLOURS OF PREPARATIONS  
STAINED WITH ‘SOLOID’ MICROSCOPIC STAINS  
(Magnification 1000 diameters)

antitoxin given and the frequency of eruption was noted, but in one case, where antitoxins from two different sources were injected at the same time, two separate antitoxin rashes were observed; the first occurring ten days, and the second fourteen days, after the giving of the antitoxins. No special sources of antitoxin were found to cause a preponderating number of eruptions, and the eruptions occurred throughout the two years I was working with diphtheria.

Different  
sources of  
antitoxin

“Skin eruptions appeared in about a fourth of the cases. The period of onset was usually during the second week after the giving of the antitoxin. The eruption met with was not so peculiar as to be pathognomonic, but was sufficiently marked, especially in relation to the general symptoms, as to constitute a distinct type.

“There may be a little desquamation after severe and prolonged erythemata, but there is rarely any confusion between true scarlet fever occurring in the course of diphtheria and eruptions produced by antitoxin.

“The general symptoms, beyond a rise of temperature of some  $3^{\circ}$  F. and its accompanying malaise, are not marked. Pains in the joints have been frequently described, but were not observed in one of these 500 cases. This result may have been due to the cases being chiefly among children. The only marked case in which pain was present was that of a girl of 13, who had frontal headache and lumbar pain extending down the thighs. She had a marginate erythematous eruption, and the temperature rose to  $101^{\circ}$  F.

Rise of  
temperature

“Transient early erythematous blushes, and also urticaria, often occur soon after the injection of antitoxin, but these may be generally considered to be of traumatic origin, and not to be related to any specific property of the antitoxin. The area of skin, before injection, was sterilised with soap and carbolic lotion, and the injection syringe was boiled before each injection. No abscess at the seat of injection occurred.

“The occurrence of an antitoxin eruption during the course of a case of diphtheria did not appear to influence the



## Prognosis

prognosis seriously, though it cannot but be held that any febrile disturbance of the heart would tend to have a harmful effect. No case, however, was observed where fatal heart-failure was precipitated by the occurrence of an antitoxin eruption."

A long experience of reports received at the Wellcome Physiological Research Laboratories, leads to the conclusion that idiosyncrasy of the patient is more responsible for the varying severity of the eruption and other symptoms attributable to serum than the use of serum from different horses.

Several observers have found the administration of calcium salts efficacious in preventing or dispelling serum-rashes.

## Super-sensibility

An interesting light has in recent years been thrown on the susceptibility of some patients to the toxic action of serum, by the observation that the injection of a small quantity of horse-serum into an animal, renders it liable to fatal intoxication by a large dose given upwards of ten days later. Goodall\* has shown that an injection of serum may render a patient liable to severe constitutional effects when another injection is given even two years later; and interesting cases are on record in which patients have had progressively more severe symptoms as a result of three or more successive injections of serum separated by intervals of years. It must be borne in mind, however, that cases of natural abnormal susceptibility to other substances are not uncommon. Eggs, strawberries, shell-fish, etc., produce in certain individuals, when taken in comparatively minute quantities, symptoms very similar to the serum rashes.

## Concentrated diphtheria antitoxin

The administration of the large doses of diphtheria antitoxin, which most authorities now advocate, is much facilitated by reducing the volume containing the requisite number of units. Formerly this was only made possible by the chance discovery of a horse which responded well to the immunising injections and yielded a natural serum of high potency. During the last few years, however, methods of

\* *Journal of Hygiene*, 1907

separation of the antitoxin by salt-precipitation have been developed, which render it possible to get high unit value in small volume and at the same time to eliminate those proteins of the serum which, though they have no antitoxic value, are at least equally responsible with the antitoxin-bearing fraction for the incidental toxic symptoms which serum produces in susceptible patients. Such concentrated solutions of the antitoxic globulins have been reported in practice to cause a smaller percentage of rashes and other symptoms, and those of a milder type, than are produced by equivalent injections of untreated serum.

'Wellcome' Brand Concentrated Diphtheria Antitoxin is prepared by such a method of salt-precipitation and fractionation the final product containing 1000 antitoxic units in 1 c.c. or less.

#### ANTIVENENE

This serum continues to maintain its claim to be a trustworthy remedy for snake-bite, if injected in large quantity, not later than three or four hours after the bite. A case reported in the *Lancet* of January 5, 1901, illustrates the efficiency of fresh antivenom serum, even after the appearance of general symptoms, and in the absence of any local treatment except sucking the wound. The serum was injected into each flank, about  $3\frac{1}{2}$  hours after the bite.

Antivenene  
injection

'Wellcome' Brand Anti-venom Serum is standardised against the venom of the cobra and Russell viper (*Daboia*), and is the result of immunising horses against these venoms.

The surgical treatment of snake-bite is very important, and depends upon the fact that "it is possible, after even half an hour or more from the time of the bite, a considerable portion of the venom may still be unabsorbed at the site of the injection, and so may still be destroyed" by suitable means.\*

Surgical  
treatment of  
snake-bite

The first thing to do in every case where the position of the bite makes it possible, is to place a ligature (rope, cord

\* *Lancet*, February 6, 1904, page 355



or handkerchief) round the limb between the wound made by the fangs of the snake and the body, and wash the wound thoroughly, encouraging it to bleed.

The wound should then at once be bathed with a fresh solution of chloride of lime (1/60 in distilled water), or with a 1 per cent. solution of chloride of gold, with the object of destroying *in situ* any venom which may remain unabsorbed (Calmette, Institut Pasteur de Lille).

Or a small incision may be made through the wound, and pure crystals of permanganate of potassium, moistened with a little water, rubbed into it. (Captain L. Rogers, I. M. S., quoting Brunton, Fayrer and others.\*)

The successful carrying-out of either of these procedures depends upon an intelligent appreciation of the exact position of the poison, which may be indicated by a local extravasation of blood-stained serum.

The position  
of the poison

The following important considerations should be specially noted:—

In severe cases, and in others where some time (two or three hours) has elapsed after the bite, the serum should, if possible, be injected intravenously.

The dose should not be less than 10 c.c., whether injected subcutaneously or intravenously. The snake-bite should be very carefully cleansed and disinfected before injecting the serum.

“Artificial respiration may . . . be of great value while medical aid or antivenene is being sent for. . . .” †

#### ANTI-TETANUS SERUM

This serum, like anti-diphtheria serum, is antitoxic in its action. Although it may be stated that some cases of this disease have been distinctly benefited by its administration, in many others the serum has failed. A consideration of the nature of the disease shows why this is so, and why, even more than in diphtheria, it is necessary to commence the treatment at the earliest possible moment.

Anti-tetanus  
serum

\* *Lancet*, February 6, 1904, page 354. † *Lancet*, February 6, 1904, page 352.

Tetanus is a disease caused by the action of the toxin of the bacillus tetani upon the central nervous system; the toxin, as in the case of diphtheria, being produced in some local lesion, the seat of the growth and multiplication of the specific organisms. In tetanus, the toxin makes its way to the motor ganglion cells, partly by way of the nerves in connection with the affected part, and partly by way of the blood.

Unfortunately, the convulsive stage of tetanus is an indication not of the commencement of the disease, as is the appearance of a membrane in diphtheria, but of a comparatively advanced stage of the disease, and of the occurrence of serious damage to the nervous system. The remedy should therefore be administered immediately on the manifestation of any distinct symptoms, possibly tetanic, such as difficulty in opening the mouth, stiffness in the neck, or the onset, some days after the accident and without obvious cause, of an acute pain at the point of injury; and in view of the fact that the tetanus bacillus is localised and restricted to the seat of infection, attention is called to the advantage, in cases of punctured wounds, of excising freely and thoroughly the tissues around. The curative dose of anti-tetanus serum may vary from 50 c.c. to 100 c.c., in one dose or more, but, as a prophylactic in the treatment of wounds contaminated with dust, dirt, soil, etc., a smaller dose of 10 c.c. is said to be sufficient. This protection, however, does not persist longer than five or six weeks. It should be remembered, in considering doses, that it is impossible at present to state definitely the quantity of serum necessary to meet a given case, for so much depends on the severity of the attack, and the stage at which treatment is begun. It is, therefore, better to give a large dose at the commencement. The old medicinal treatment should not be neglected.

Symptoms of tetanus

Dose of the serum

The records of 98 cases treated by serum were collected by Weischer.\* Of these, 41 died, the mortality per cent. thus being 41·8.

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\* *Münch. Med. Woch.*, Nov. 16, 1897



The serum has been injected directly into the substance of the brain with success, and it has been claimed that this method gives the best results. A full account of this, giving details of the operation, may be found in the medical papers.\*

Whilst, as a curative agent, the serum has thus proved a relative failure, it has proved a most valuable prophylactic in the case of wounds infected with soil in districts where tetanus abounds.

#### BACTERICIDAL SERA

**Anti-streptococcus Serum.**—The disappointing results which were obtained in many cases in the early days of the preparation of anti-streptococcus serum were doubtless due in part to the absence, at the time, of any adequate classification of the streptococci, with the result that a serum prepared against one strain of streptococcus was tried for a wide range of different infections, which would now be recognised as due to specifically distinct organisms.

**Polyvalent Anti-streptococcus Sera.**—A prolonged and serious attempt has been made in conjunction with clinical observation and laboratory tests to obtain specific polyvalent anti-streptococcus sera. Cultures were obtained from as many cases as possible of a particular disease, taken from such situations and under such precautions as to make it probable that the organisms were causally associated with the disease. The following are details of the origin of the organisms used in producing some of the 'Wellcome' Sera:—

**Anti-streptococcus Serum (Puerperal Fever).**—Cultures from 26 cases, mostly fatal, obtained from the uterus or the spleen.

**Anti-streptococcus Serum (Erysipelas).**—Cultures from 3 cases.

**Anti-streptococcus Serum (Scarlet Fever).**—Cultures from 9 cases, several of which were fatal, obtained from the blood, the spleen and the knee-joint.

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\* *British Medical Journal*, January 7, 1899

**Anti-streptococcus Serum, Rheumatism (*Micrococcus Rheumaticus*).**—Cultures from 6 cases, obtained from the knee or shoulder-joint.

**Anti-streptococcus Serum, Polyvalent.**—The horses are immunised against all the strains mentioned above, and, in addition, with strains obtained from 2 cases of Angina Ludovici and 6 cases of Ulcerative Endocarditis (from blood cultures obtained during life), and with 10 strains of *Streptococcus Pyogenes* from Pyæmia, Mammary Abscess, Acute Peritonitis, Suppurative Arthritis, etc.

This serum has found more extended application than any of those prepared from organisms associated with a particular clinical picture, and the recorded cases in which its use has been attended with beneficial results are now too numerous to leave much room for doubt of its efficacy in streptococcal infections.

A point to be specially borne in mind is that all cases of puerperal fever, spreading inflammation of the skin or subcutaneous tissues, are not necessarily associated with the presence of actively growing streptococci. They may be due to some quite different organism, and so would not be benefited by injections of anti-streptococcus serum. The importance of ascertaining by bacteriological tests the kind of organism at work in all such cases is thus manifest.

Septicæmia  
due to various  
micro-organisms

Other anti-bacterial sera which have been prepared at the Wellcome Physiological Research Laboratories are:—

**Anti-coli Serum.**—In the preparation of this, 20 strains of *Bacillus coli* are used, obtained mostly from the peritoneum in fatal peritonitis and the uterus in puerperal fever due to *B. coli*.

**Anti-staphylococcus Serum.**—This is also a polyvalent serum, cultures of staphylococcus albus, aureus, citreus and hæmorrhagicus, 15 in all, and all obtained from pus, being used in its preparation.

**Anti-dysentery Serum.**—Prepared by injecting killed cultures of Shiga's, Flexner's and Kruse's bacilli, 6 strains in all being used.



**Anti-gonococcus Serum.**—This is prepared from strains obtained from urethritis and gonorrhœal conjunctivitis, and is described as having given good results in the acute stage of the disease.

**Anti-meningococcus Serum.**—Four strains of the diplococcus of Weichselbaum are used.

## BACTERIAL VACCINES

Phagocytic  
activity

The opsonic  
index

While it seems clear that, even with the methods of preparation which have as yet been fully tried, the anti-bacterial sera have a certain value, it cannot be denied that they have not, in the same degree as the antitoxic sera, fulfilled the early hopes of their efficacy. Meanwhile, the technique for estimating phagocytic activity introduced by Leishman, and its application and development at the hands of Wright and others, has given a noteworthy impetus to the method of actively immunising the patient against the organism attacking him, by injection of very small doses of a killed culture of the same organism. The new method of controlling the effect of an injection, by determination of the "opsonic index," has not only given a stimulus to the extensive use of vaccination with killed cultures in various chronic suppurations and localised inflammations; it has also, to a remarkable extent, reinstated in the confidence of the medical world the tuberculin (T. R.) of Koch, which had been brought into discredit by the unfavourable results of its early application, in doses which, as the new methods of control indicate, were much too large for safety or benefit. While Wright's opsonic method has undoubtedly been largely responsible for the revival of interest in specific inoculation and the widening of its scope, its complicated and specialised technique has probably had a deterrent effect on the spread of the method in general practice. At present there is a perceptible tendency to doubt the need for the elaborate and difficult opsonic determination, and its adequacy as a control. If this

movement continues in the direction of reliance on constitutional indications or a more simple phagocytic determination, it will undoubtedly lead to a wider use of these so-called bacterial vaccines.

Vaccines are usually prepared by suspending in saline solution organisms grown on nutrient agar or some such solid medium, and killing them by heat. They are standardised according to the number of micro-organisms present in 1 c.c. The counting may be done by the absolute method, *i.e.* direct counting of a known dilution in a Thoma-Zeiss apparatus by a method similar to that employed in enumeration of red blood corpuscles. This is a tedious process, and it is more usual to employ Wright's or Harrison's method. Wright's method is to mix the vaccine with fresh blood in known proportion, make a film of the mixture, stain and then compare the total number of red corpuscles in a large number of fields with the number of organisms in the same fields. If the number of red blood corpuscles per cubic mm., the proportion by volume of blood and vaccine, and the ratio of the counts are known, it is a matter of simple calculation to determine the number of organisms present per c.c. of vaccine. The objection to this method is that many organisms may be dissolved by the bacteriolysins of the blood plasma. To overcome this difficulty, Harrison washes the blood corpuscles by several centrifugalizations with citrated saline to remove all the blood fluids, determines, by a Thoma-Zeiss count, the number of cells present in the suspension of red corpuscles in saline, and then proceeds as in Wright's method. It is of considerable value to control the counts by means of the dried weight, which, for each organism used, bears a fairly constant ratio to the bacterial count.

Methods of  
standardisation

Counting  
the blood  
cells

**Typhoid Vaccine** is used only as a prophylactic, and not at present as a curative, agent in typhoid fever. To secure immunisation, two doses are given. The first dose consists of 0.5 c.c. of vaccine, equivalent to 500 million bacteria. The second, given ten days later, is 1 c.c., equivalent to 1000 million bacteria.



After the first, and, to a much smaller degree, after the second inoculation, local and constitutional symptoms may occur. The local symptoms, present at the site of injection, are redness, swelling, pain and tenderness.

The following vaccines have been successfully employed therapeutically :—

### **Staphylococcus Vaccine, Mixed**

Containing *Staphylococcus pyogenes aureus*, *albus* and *citreus*.

This vaccine may be employed in various staphylococcic infections, such as pustular acne, furunculosis, carbuncle, sycosis, blepharitis and localised abscesses.

The initial dose is usually 500 million organisms. A second dose may be given in a week's time, or, if the constitutional effects of the first dose have been slight and evanescent, 1000 million organisms may be deemed necessary. Many authorities recommend the use of much smaller doses.

### **Staphylococcus Vaccine, Aureus**

Containing *Staphylococcus pyogenes aureus*.

This vaccine is employed in the treatment of acne and sycosis. It should only be used when the infection has been shown to be due to *Staphylococcus aureus* alone.

The dose usually employed is similar to that in the case of Staphylococcus Vaccine, Mixed.

### **Gonococcus Vaccine**

Containing *Micrococcus gonorrhææ*.

This vaccine may be used in the chronic and later stages of gonorrhœa, in gleet and gonorrhœal prostatitis, and also in such generalised infections as gonorrhœal arthritis. Good results have also been obtained in the acute stages of gonorrhœa.

The initial dose recommended by different authorities varies considerably: in some cases only 5 million organisms, and in other cases as many as 250 million are injected as an initial dose. Subsequent dosage is regulated by the constitutional effect.

### **Streptococcus Vaccine, Polyvalent**

Containing over 60 strains of streptococci obtained from the following sources: erysipelas, scarlet fever, puerperal fever, rheumatic fever, septicæmia, angina, pneumonia and ulcerative endocarditis.

This vaccine may be used in all forms of localised or generalised streptococcic infection, *e.g.* abscesses, pyæmia, septicæmia, otitis media, endocarditis, peritonitis of streptococcic origin, puerperal septicæmia, and erysipelas.

The dose is from 20–50 million organisms, and it may be administered at intervals of from one to three weeks, according to the reaction produced.

### **Bacillus Coli Vaccine**

Containing the *Bacillus coli communis*.

This vaccine may be used in all forms of coli infection of the bladder, ureters, kidneys and peritoneum; in mucous colitis, and in coli infection of the uterus and gall bladder.

The initial dose is 5–15 million organisms, which may be repeated, or increased, according to the reaction produced, from 2 to 10 days later.

### **Pneumococcus Vaccine**

Containing various strains of the *Diplococcus pneumoniae* (Weichselbaum).

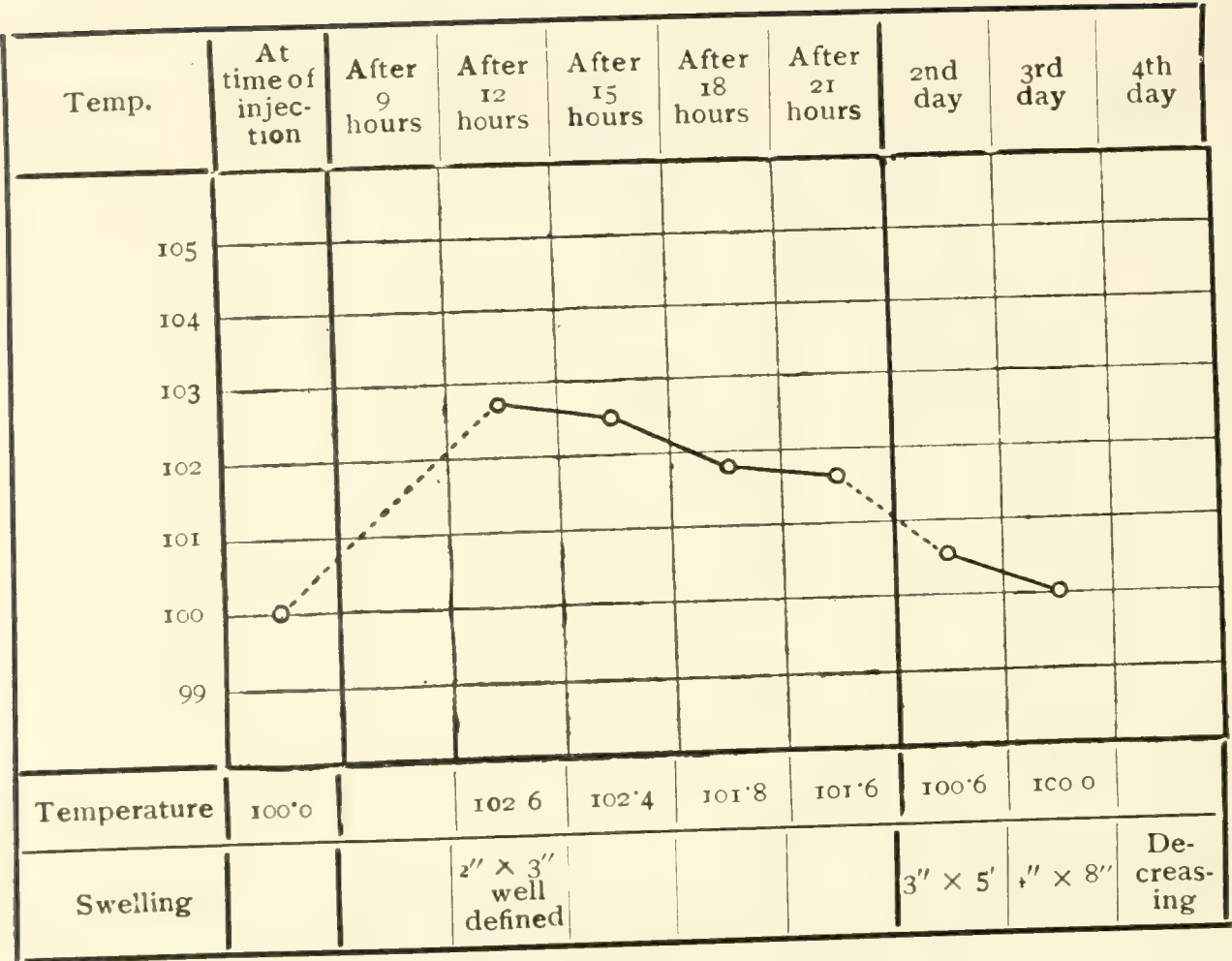
This vaccine is used in pneumococcic infections of all kinds, pneumonia, empyema, pericarditis, endocarditis, septicæmia, meningitis and pneumococcic infections of joints.

The usual dose is 10–50 million organisms, which may be repeated, according to the reaction produced, every 36 or 48 hours.

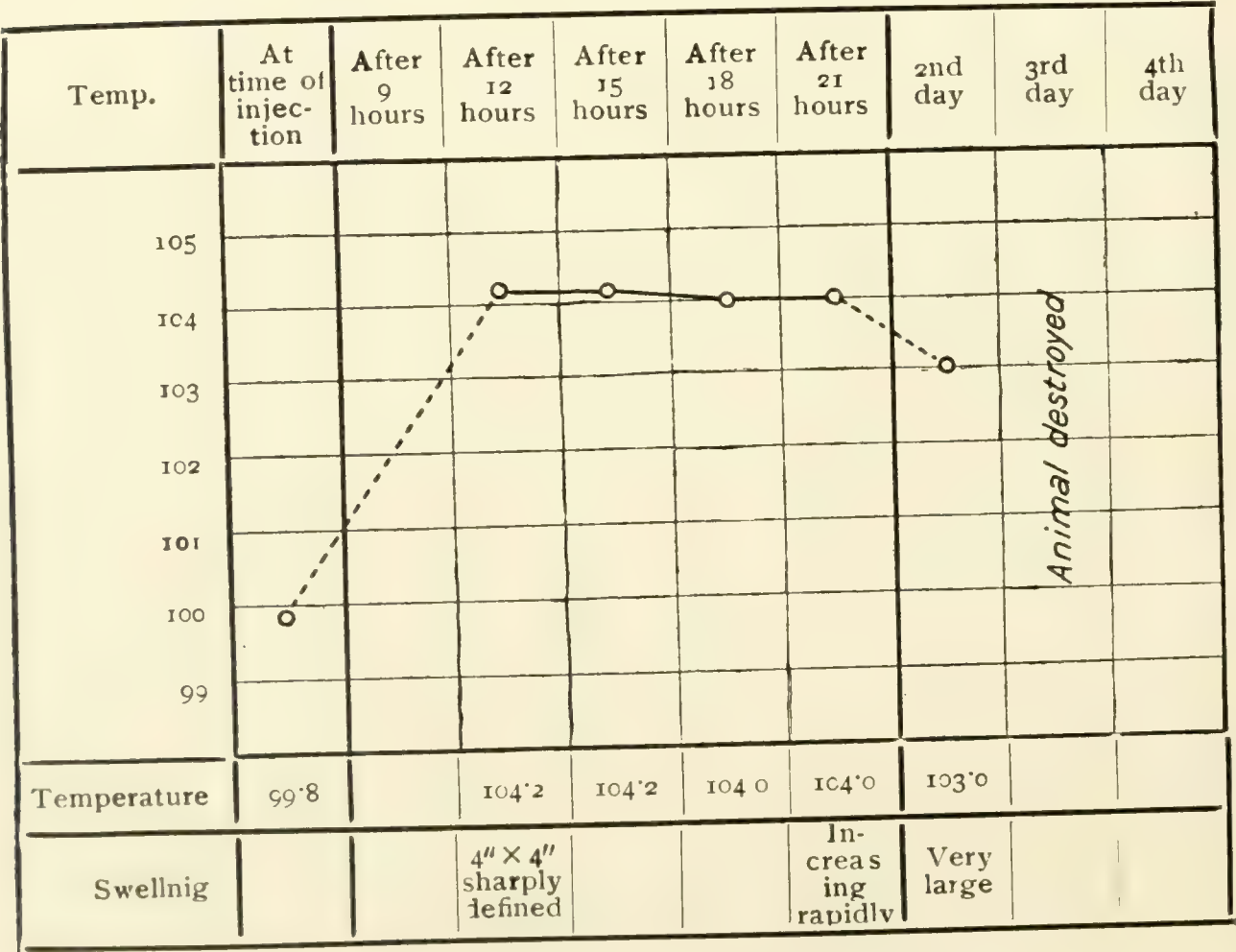
### **Acne Vaccines**

Recent research has shown that acne is primarily due to infection by a micro-organism known as the Acne Bacillus. In the early stage, when the eruption is papular in character, a bacteriological examination of the comedones or "black-heads" shows a pure acne bacillus infection. Later on, infection by the staphylococcus occurs, giving rise to the acne pustule.





Reaction to mallein of a healthy horse immunised against Diphtheria toxin. The horse was subsequently killed and the absence of glanders confirmed by post-mortem examination



Reaction to mallein of a glandered horse

A vaccine is chosen for treatment, therefore, in accordance with the stage and nature of the infection.

### **Acne Bacillus Vaccine**

This is intended for the treatment of the papular form of acne. In this form comedones are abundant, but suppuration has not yet occurred. There is no febrile reaction after the injection of this vaccine, but if the dose be excessive, a prolonged negative phase results, in which a fresh crop of acne papules appears. However, these papules disappear by subsequent injections.

### **Acne Vaccine, Mixed**

This is for use in ordinary cases of acne, usually characterised by the presence of comedones and pustules. A bacteriological examination of such cases shows a mixed infection by the acne bacillus and the staphylococcus (*aureus*, *albus* or *citreus*).

**DOSE.**—The initial dose is 4 or 5 million acne bacilli with or without staphylococci, according to the nature of the case. Subsequent dosage is regulated by the local effect. Larger doses than 10 million acne bacilli can rarely be tolerated.

In the pustular and furuncular forms of acne without comedones, Staphylococcus Vaccine, Mixed, is used.

### **Tubercle Vaccine (Human or Bovine)**

An emulsion of killed tubercle bacilli of human or bovine origin.

Treatment should commence with a dose of 1 c.c. of emulsion containing 0·0001 mgm. dried tubercle bacilli, increasing to 0·0005 mgm., or even more, according to the indications of the opsonic index, or the clinical symptoms.

## **MALLEIN AND TUBERCULIN**

**Mallein** is a bacterial filtrate used in the diagnosis of glanders. It is prepared from cultures of the organism causing glanders (*Bacillus mallei*) which have been grown for about six weeks on bouillon containing glycerin, sterilised by heat and filtered. A small quantity of some antiseptic,



such as phenol, is added as a preservative. When injected under the skin of a normal horse, mallein produces little or no apparent effect, but, should the horse be suffering from glanders, a large swelling forms at the seat of injection, and this is usually accompanied by a rise in the temperature of the animal.

Recent investigation at these Laboratories\* has shown that many non-glandered horses, if they have been immunised against other bacterial products, give a reaction to mallein in some ways similar to that given by glandered animals.

Reactions of  
healthy and  
glandered  
horses

The size of the swelling produced in such cases appears to depend on the degree of immunity. Thus, in the case of a group of horses injected with diphtheria toxin, 6 of which were highly immune, all gave large local reactions; out of 7 moderately immune, 4 gave large swellings; and in 4 horses in which the serum had a low antitoxic value, only small mallein reactions were produced. The local swelling obtained in such healthy, immune horses differs very markedly from that given by the glandered animal in its rapid disappearance. Similarly, when a rise of temperature is produced by mallein in a healthy horse immunised against other bacterial products, this is smaller, attains its maximum more rapidly, and is far less persistent than the febrile reaction to mallein of a horse suffering from glanders. These differences are illustrated in the charts on page 332.

Similar results were obtained upon immune horses with tuberculin and several other bacterial products, such as those obtained from *Streptococcus*, *Bacillus coli communis*, *Bacillus typhosus*.

Diagnosis of  
tuberculosis

**Tuberculin** ("Old" Tuberculin). — Tuberculin for veterinary diagnostic use is prepared from bacillus tuberculosis by a method similar to that used in the production of mallein from bacillus mallei. For the diagnosis of tuberculosis in cattle, the temperature reaction is of much greater importance than the local effect of the injection. A rise in temperature of  $2.5^{\circ}$  F. within 12 to 15 hours of

\* Südmersen and Glenney, *Journal of Hygiene*, 1908

injection is usually considered sufficient to warrant the condemnation of an animal.

**Ophthalmo-Tuberculin Reaction.** — The reaction is produced by purified tuberculin obtained by the alcoholic precipitation of ordinary tuberculin. If a small quantity of the precipitate, dissolved in water, be applied to the surface of the conjunctiva, a marked reaction results in the case of tuberculous individuals. Cases have been reported where some inconvenience due to persistence of inflammation has arisen as a consequence of the application to the eye. Cases have also been reported in which reactions have been obtained in non-tuberculous subjects.

Purified  
tuberculin

Other modifications are the reaction of v. Pirquet, in which the "old" tuberculin, applied to lightly scarified areas of skin, produces, in a large proportion of tuberculous subjects, inflamed papules persisting for some days, and Moro's modification, in which an ointment containing tuberculin is rubbed on the skin, with a similar result.

## THE SERUM DIAGNOSIS OF TYPHOID FEVER

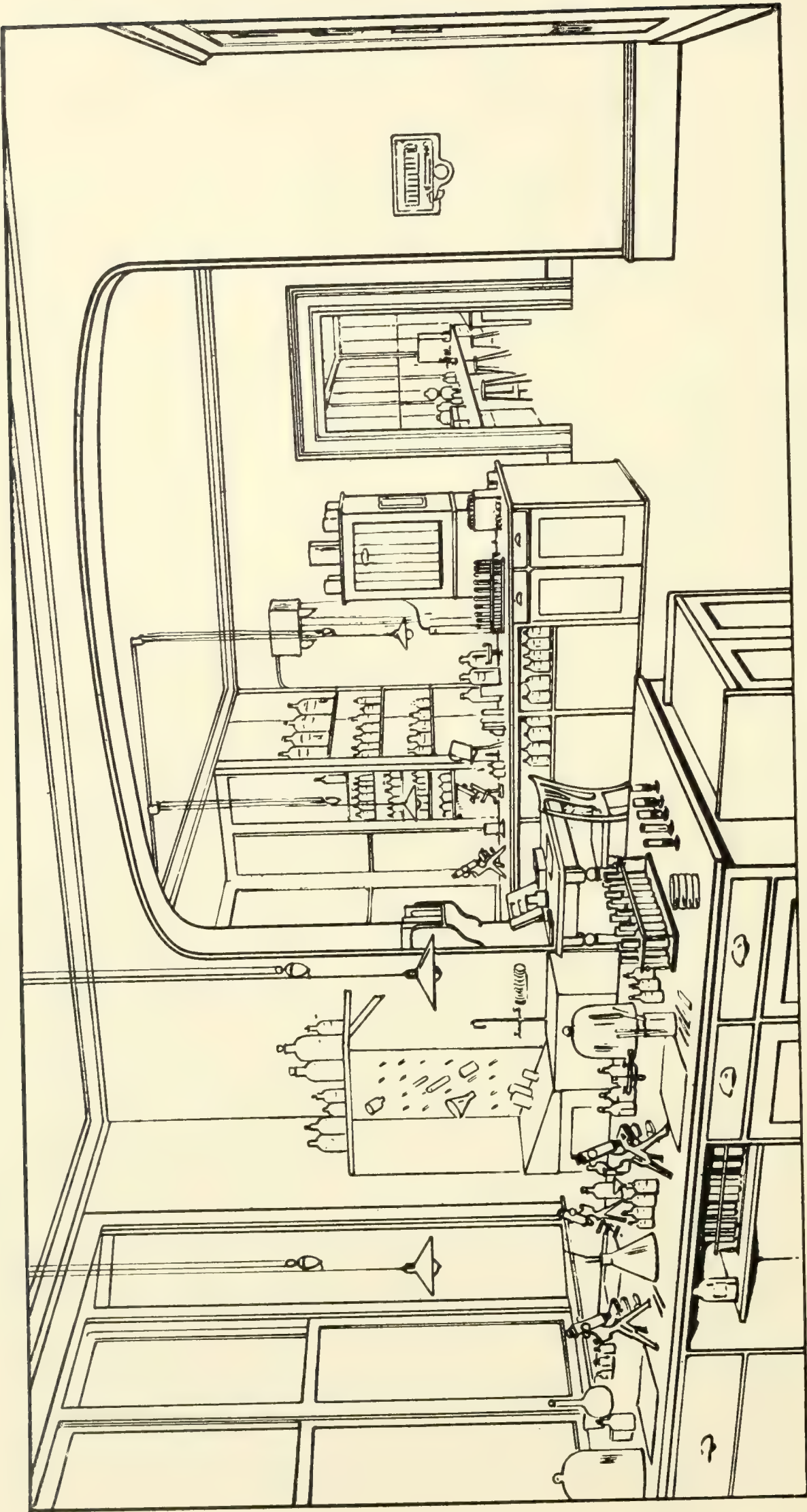
A series of investigations, made in different countries, has brought to light the fact that the serum of an animal rendered highly immune to the typhoid bacillus has a marked action upon the organisms, causing them to lose their motility, and to become collected together into little masses, which rapidly sink to the bottom of the tube containing the mixture of serum and culture.

Following this, the fact that the serum of patients suffering from typhoid fever usually gives a reaction with cultures of the typhoid bacillus, similar to, though less marked than, that given by the serum of animals immunised by the bacillus, has been confirmed by a host of observers. This affords evidence of great weight that the bacillus is really the cause of typhoid fever, and it also affords a valuable method of diagnosis.

Typhoid

In the serum of those suffering from typhoid fever, the reaction is said to have been observed as early as the fourth





PRINCIPAL BACTERIOLOGICAL LABORATORY

day. Usually it appears about the beginning of the second week, but it is undoubtedly often absent at this period. According to Courmont,\* it is in cases which are exceptional, either on account of complications or severity, or because they are extremely mild, that the agglutinative power is feeble or delayed; in simple cases of moderate severity it appears constantly about the sixth or seventh day, is active, in dilution of 1 in 100, about the tenth day, undergoes a more or less rapid rise towards the end of the febrile period (critical rise), and then disappears more or less rapidly. The persistence of the agglutinative power after recovery appears to be very variable, in some cases rapidly disappearing, in others remaining for years. The blood of those who are not suffering from typhoid fever, and from whom no history of this disease can be obtained, occasionally gives a reaction in dilution of 1 in 10, or even 1 in 30 (the dilutions recommended by Widal). But these instances do not appear to be sufficiently numerous to impair seriously the value of the test. It is thought desirable, however, to use higher dilutions, viz., 1 in 50.

Agglutinative  
power

From the considerations briefly set out above, it seems permissible to conclude that—(1) A negative reaction is of little value in the early days of the fever. It is of greater importance in proportion to the lateness of the period at which it is observed. It can, however, never absolutely exclude typhoid fever. (2) A positive reaction, on the other hand, except with dilutions of less than 1 in 40, is sound evidence of typhoid fever, present or past. The latter can be excluded if several quantitative tests have been made at different periods, and decided changes in the agglutinative power observed.

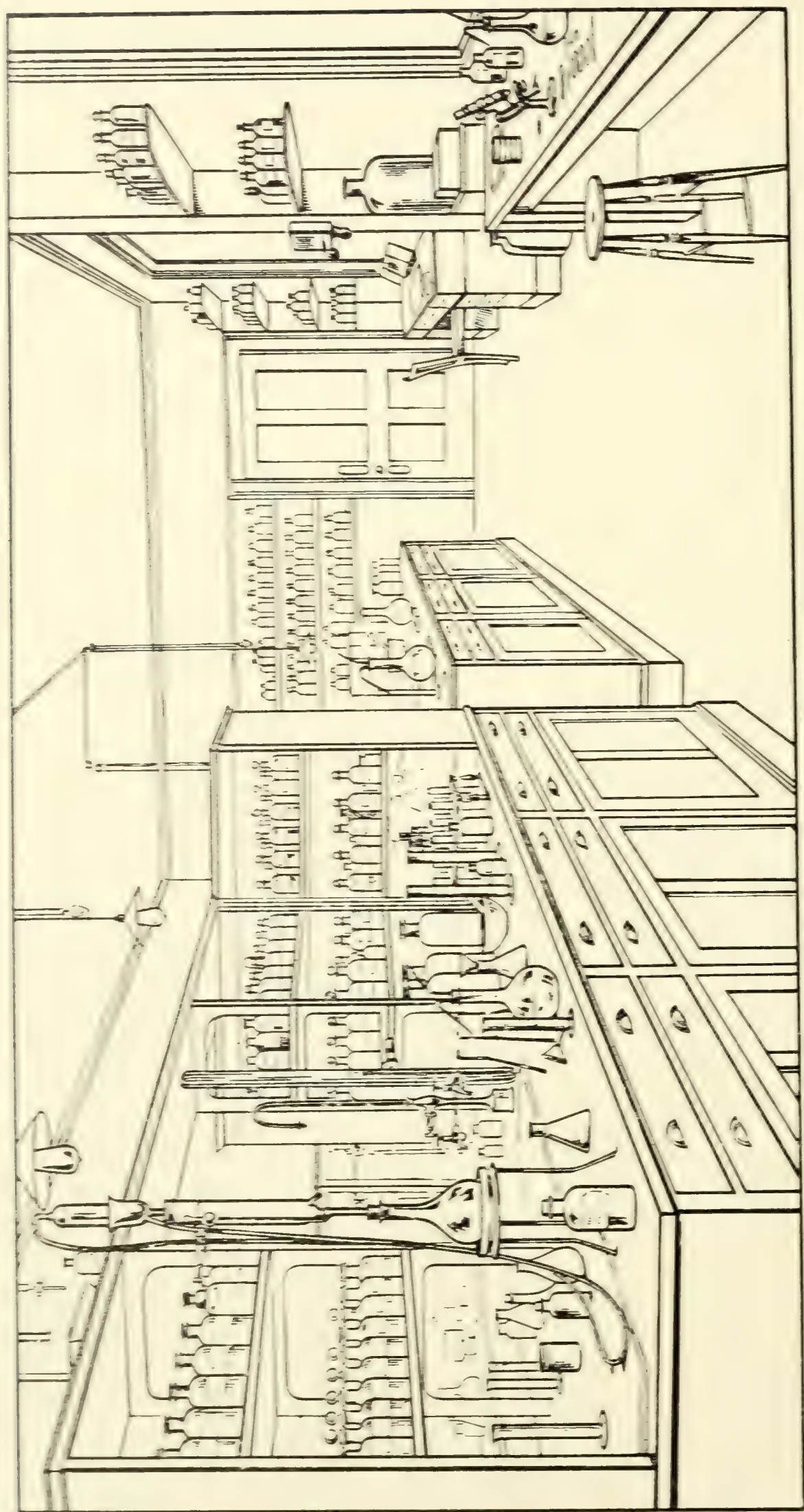
Conclusions

Recently an ophthalmo-reaction in typhoid fever, produced by a special culture filtrate and resembling the tuberculo-ophthalmic reaction, has been described by Chautemesse, and some promising results of a similar nature have been obtained by the use of a typhoid endotoxin prepared at the Wellcome Physiological Research Laboratories.

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\* *Revue de Médecine*, October, 1897





ONE OF THE LABORATORIES FOR CHEMICAL RESEARCH

## ORGANO-THERAPY

The brilliant success which attended the introduction of the treatment of myxœdema by administration of thyroid substance, led to the investigation of the effects of other ductless glands. In no other case has a similar success attended similar methods; but the attention directed to these organs has resulted in the discovery of marked physiological actions, of great therapeutic importance, possessed by some of them. It has been shown, by Schäfer and others, that the posterior or infundibular lobe of the pituitary gland contains an active principle—as yet of unknown nature—the effects of which are not less striking than those of the more familiar active principle of the supra-renal medulla. The effects of the pituitary extract include a pronounced rise of blood-pressure chiefly due to arterial constriction, the heart-beat being somewhat slower and more powerful; intense and prolonged contraction of the uterus,\* and profuse secretion of urine. All these effects have already found important therapeutic applications, the clinical value of the extract having been demonstrated by Blair Bell.†

## ORGANIC AMINES

## ‘HEMISINE’.

‘Hemisine’ is a name given to the active principle occurring in the medulla of the supra-renal gland and other smaller masses of paraganglionic tissue related to sympathetic ganglia. Its action likewise is closely connected with the sympathetic nervous system, intravenous injection producing all the effects which are elicited by stimulation of the nerve fibres of the true sympathetic system. Prominent among these is a great rise of blood-pressure, produced by constriction of peripheral arteries and augmentation of the heart’s activity. So active is ‘Hemisine’ in this direction, that a dose of as little as 0·000001 gramme will produce a perceptible rise of blood-pressure. Contraction of the uterus

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\* Dale, *Bio-Chemical Journal*, 1909† Blair Bell, *British Medical Journal*, 1909



is also caused in those animals in which the sympathetic nerve-supply to that organ is motor in function. These effects are illustrated by tracings (*see page 342*).

### 'TYRAMINE'

Isolated  
at W. P. R. L.

'Tyramine' is a name which has been given to the organic base Para-hydroxyphenylethylamine ( $\text{HO}-\langle \text{---} \rangle \text{CH}_2-\text{CH}_2-\text{NH}_2$ ). It has been recognised now for some years, having been first pointed out by Abelous and his associates, that extracts of putrefied meat contain substances which, when injected into the circulation, produce an effect on the blood-pressure reminiscent of that produced by supra-renal extracts. The same phenomenon was encountered by Dixon and Taylor, who found that certain extracts of human placenta caused a rise of blood-pressure and contraction of the uterus, it being subsequently demonstrated by Rosenheim that a certain amount of putrefaction of the placenta was necessary for the development of this activity. The substances concerned in this action have recently been isolated at the Wellcome Physiological Research Laboratories, and identified as *iso*-amylamine, phenylethylamine, and *p*-hydroxyphenylethylamine.\* The action of these substances has been found to be similar in most respects to that of the supra-renal active principle, but weaker and more prolonged.†

'Tyramine' the  
most active

Of the three, *p*-hydroxyphenylethylamine is much the most active, being also the most nearly related in chemical structure to the supra-renal principle. Its relatively weak and prolonged action, as compared with the latter, enables it to be absorbed from the alimentary canal or the subcutaneous tissues, so that its general constitutional effects, rise of blood-pressure, increased vigour of the heart's action, and contraction of the uterus, can be produced by administering it by the mouth or hypodermically. The study of this substance has recently gained greatly in interest by the discovery that it is present in watery extracts of

\* Barger and Walpole, *Journal of Physiology*, xxxviii, p. 344, 1909.

† Dale and Dixon, *Journal of Physiology*, xxxix, p. 25, 1909.

ergot, and is chiefly responsible for the well-known effects of such extracts on the blood-pressure and the uterus.\*

Several methods of preparing this base synthetically have been worked out at the Wellcome Physiological Research Laboratories† and it will probably find wide therapeutic use.

Another amine derived from an amino-acid by splitting off carbon dioxide is  $\beta$ -iminazolyethylamine, which can be obtained from histidine by the action of certain putrefactive bacteria (Ackermann) or by chemical agents,

This base has an action of quite a different type, being a very potent stimulant of plain muscle, conspicuously of uterine muscle, irrespective of innervation. In carnivora, however, it causes a large fall of systemic pressure by arterial dilatation, its action in this and other respects being markedly similar to that of various depressor organ extracts of certain commercial preparations of "peptone" (Dale and Laidlow). Barger and Dale identified as this base the constituent of ergot extracts chiefly concerned in the very powerful action on the isolated uterus described by Kebrer.

#### ERGOTOXINE AND 'ERNUTIN'

Many substances which have in the past been described as active principles of ergot, and which undoubtedly showed physiological activity, have not possessed the characteristics of pure chemical substances. Such were the sphacelinic acid and cornutin of Kobert, and the chrysotoxin, secalin-toxin, and sphacelotoxin of Jacobj. On the other hand, the alkaloid which Tanret isolated in an undoubtedly pure and crystalline form, and named "ergotinine," was found by several observers to possess practically no pharmacological action, although there was some clinical evidence of its activity. Recent work in the Wellcome Physiological Research Laboratories‡ has cleared up this anomaly by

Active  
principles  
of ergot

The  
alkaloid  
ergotoxine

\* Barger and Dale, *Journal of Physiology*, 1909, xxxviii, p. 77 [Proc. Phys. Soc.]

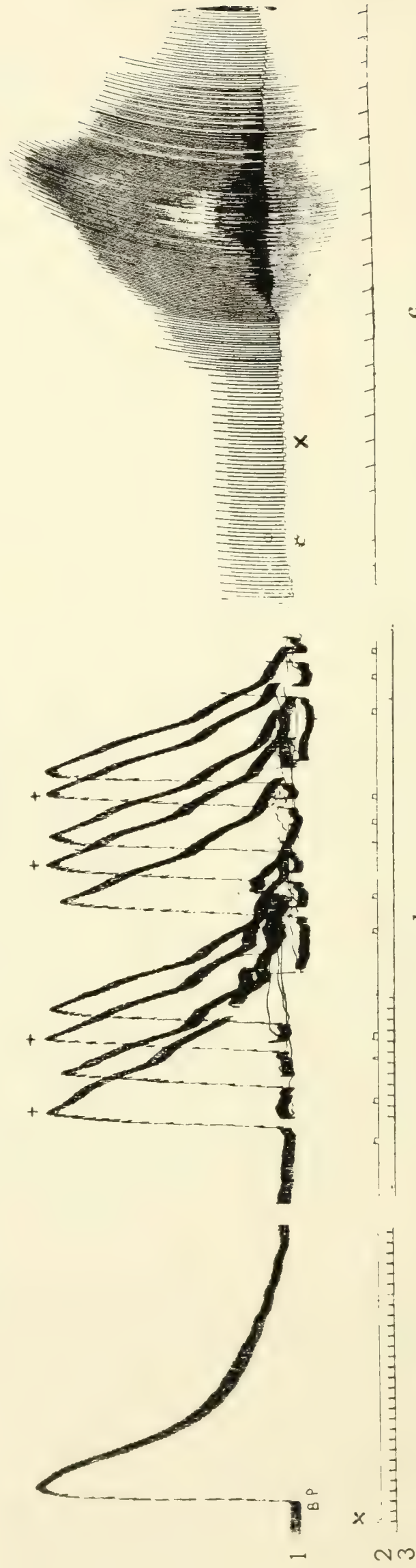
† Barger, *Journal of the Chemical Society*, xcv, p. 1123, 1909.

‡ Dale, *Journ. of Physiol.* xxxiv, p. 163, 1906; Barger and Carr, *Journ. Chem. Soc.*, xci, p. 337, 1907; Barger and Dale, *Bio-Chem. Journ.* ii, p. 240, 1907.





H  
No. 1. TRACING SHOWING THE EFFECT OF 'HEMISINE' ON THE BLOOD-PRESSURE  
See page 346



*a*  
No. 2. TRACINGS ILLUSTRATING ACTION OF 'HEMISINE' AND METHOD OF STANDARDISATION  
See page 347

demonstrating the presence in ergot of the alkaloid ergotoxine, which is closely related chemically to ergotinine, being a hydrate of the latter and easily produced from it, but differing from it in being intensely active physiologically. Subsequent investigations have shown that ergotoxine has acid as well as basic properties. Unlike ergotinine, therefore, it is soluble in dilute alkali, and also forms organic esters, of which the ethyl- and methyl-esters have been prepared.

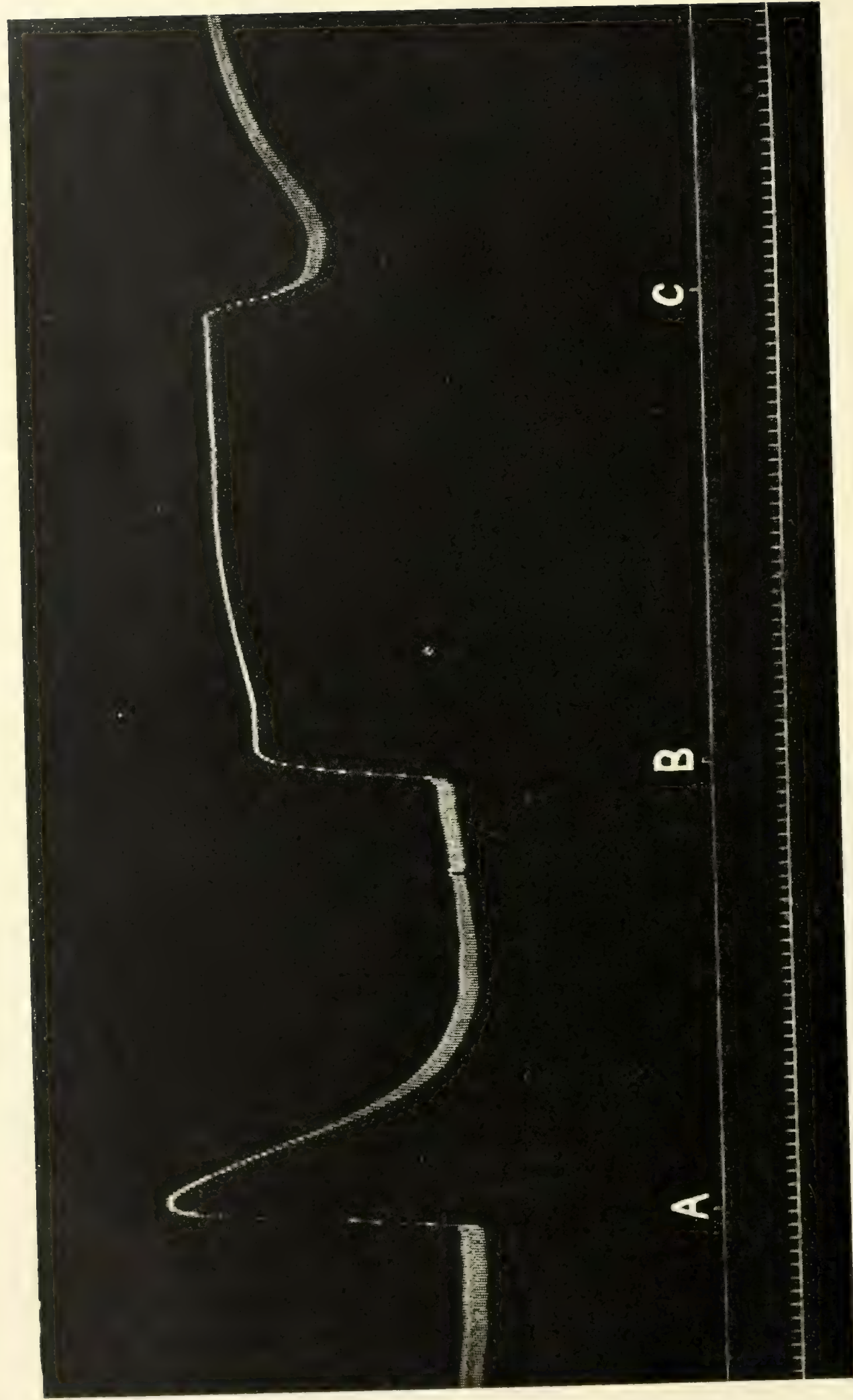
These facts throw further light on the occurrence of ergotoxine as the true active constituent of various preparations both of basic and acidic nature which have, from time to time, been described as "active principles" of ergot. Ergotoxine, though itself amorphous, forms crystalline salts, and has accordingly been prepared in a chemically pure condition. Its physiological action is characteristic, consisting of a stimulant action on plain muscular organs, and in particular on the arteries and the uterus. When a large dose is given, a secondary paralytic effect on the motor functions of the true sympathetic nervous system is produced. As a result, the injection of 'Hemisine,' or stimuli applied to the sympathetic nerves concerned, now cause a fall of blood-pressure and relaxation of the uterus in place of the previous rise of pressure and contraction. This secondary action affords a convenient means of recognising the presence of the active alkaloid, and estimating the quantity present in any specimen or preparation of ergot. This physiological method of assay is the more valuable in that no satisfactory chemical method is yet available for estimating ergotoxine.

Its crystalline salts

Physiological assay of ergot preparations

While ergotoxine is the only active principle identified as specific and peculiar to ergot, it does not account for the whole of the activity of all ergot preparations. It was pointed out by Barger and Dale, in 1907, that certain extracts of ergot, and in particular the official watery preparations, possess a pharmacological activity too great to be attributed to the traces of ergotoxine which they contain.





NO. 3. EFFECT OF 'HEMISINE' AND 'ERNUTIN' ON THE BLOOD-PRESSURE;  
*See page 347*

Two distinct types of activity, neither due to ergotoxine, can be recognised in such extracts, *i.e.* (1) a pressor effect due to a principle which, in general features of its action, resembles the supra-renal active principle; this has been shown to be due chiefly to the presence of *p*-hydroxyphenylethylamine; and (2) an intense stimulating action on the plain muscle of the uterus, independent of its reaction to nerve impulses; this has been traced to the presence of  $\beta$ -iminazolyethylamine (Barger and Dale). It is quite in accord with what might be expected on theoretical grounds, that the ferments of a fungus like ergot should, equally with putrefactive bacteria, have the power of producing these bases from the amino-acids, derived, in this instance, from the proteins of the rye-grain. The presence of varying amounts of *p*-hydroxyphenylethylamine, together with small amounts of ergotoxine, accounts for the whole of that action of ergot extracts on the blood-pressure, which has been widely recommended as a basis of standardisation.

Ferments and  
putrefactive  
bacteria

‘Ernutin’ is a fluid preparation which contains these active principles of ergot in a definite and uniform proportion, unmixed with depressant and harmful impurities.

#### PHYSIOLOGICAL STANDARDISATION

No insistence is needed on the desirability of a uniform standard of activity in all drugs, and especially in such as contain principles of a highly active and toxic nature. In the case of some, such as cinchona or belladonna, such a standardisation is easily carried out by chemical means. There are, however, other drugs in which the active principles are of such a nature that attempts at chemical estimation are only misleading, even though the active principles are recognised and something known of their chemical nature. Typical instances of such drugs are those of the group including digitalis, strophanthus and squill. In the case of digitalis, research in these Laboratories\* has shown the futility of the chemical methods suggested and the adequacy of an estimation based on the effect of

Necessity for  
physiological  
methods

\* Barger and Shaw, *Year-Book of Pharmacy*, 1904



the drug on the frog's heart. The conclusions reached apply, with little modification, to strophanthus and squill, and preparations of all these drugs are now standardised by this method in these Laboratories.

*Cannabis indica* is a notoriously variable drug, but, by observing the nervous symptoms produced by a given dose in a dog or cat, a fair estimate of the activity of any specimen can be made.

Ergot is another drug in which the amount of the active principles varies to a very marked degree. The isolation of ergotoxine and the other active principles, and the demonstration of the presence of p-hydroxyphenylethylamine in ergot extracts, may eventually lead to the development of a satisfactory chemical method of determining its activity. Hitherto, however, physiological methods, based on the action of ergotoxine and of the amines described above, have proved a far surer guide than any chemical assay.

The purity of a specimen of 'Hemisine' can be much more satisfactorily determined by comparison of its activity to that of a standard specimen than by chemical tests. The method illustrated, in which the amount of a given specimen is determined, which produces a rise of blood-pressure equal to that given by a given dose of a specially-prepared pure standard sample, is found in these Laboratories to be workable to an accuracy of about 5 per cent., and is used in standardising all supra-renal preparations.

Kymograph tracings are reproduced on pages 352 and 354. They represent the results of pharmacological research and some methods of physiological standardisation in use at the Wellcome Physiological Research Laboratories.

## DESCRIPTION OF TRACINGS

(I) 'Hemisine.' The lines of tracing, from above downwards, are :—

- I. Plethysmographic tracing of heart volume.
- II. Manometer-record of blood-pressure from the carotid artery.
- III. Signal line, showing time of injection.

The active principles of ergot

The standardisation of 'Hemisine'

At *H*, 0.0001 gm. of 'Hemisine' was injected into the jugular vein, causing a large rise of blood-pressure, and quickening and strengthening the heart-beat.

(2) 'Hemisine'—

- (a) Effect of 'Hemisine' on the blood-pressure of a decerebrate cat:—

Lines of tracing—

- (1) Blood-pressure.
  - (2) Signal line marking the point of injection.
  - (3) Time-clock marking every 10 seconds.
- (b) Method of standardising 'Hemisine' and other suprarenal gland preparations. Varying doses of the solution to be tested are interposed between injections of 0.00002 gm. of the standard specimen of 'Hemisine.' Effects of standard doses are indicated by a **X**. Between the injections the recording drum is moved back so as to produce partial superposition and facilitate comparison.
- (c) Effect of 'Hemisine' on the isolated heart of a rabbit, perfused through the coronary circulation with oxygenated Ringer's solution (Locke's method). At **X** 0.00005 gm. of 'Hemisine' was added to the perfusion fluid.

- (3) Effect of 'Hemisine' and 'Ernutin' on the blood-pressure—

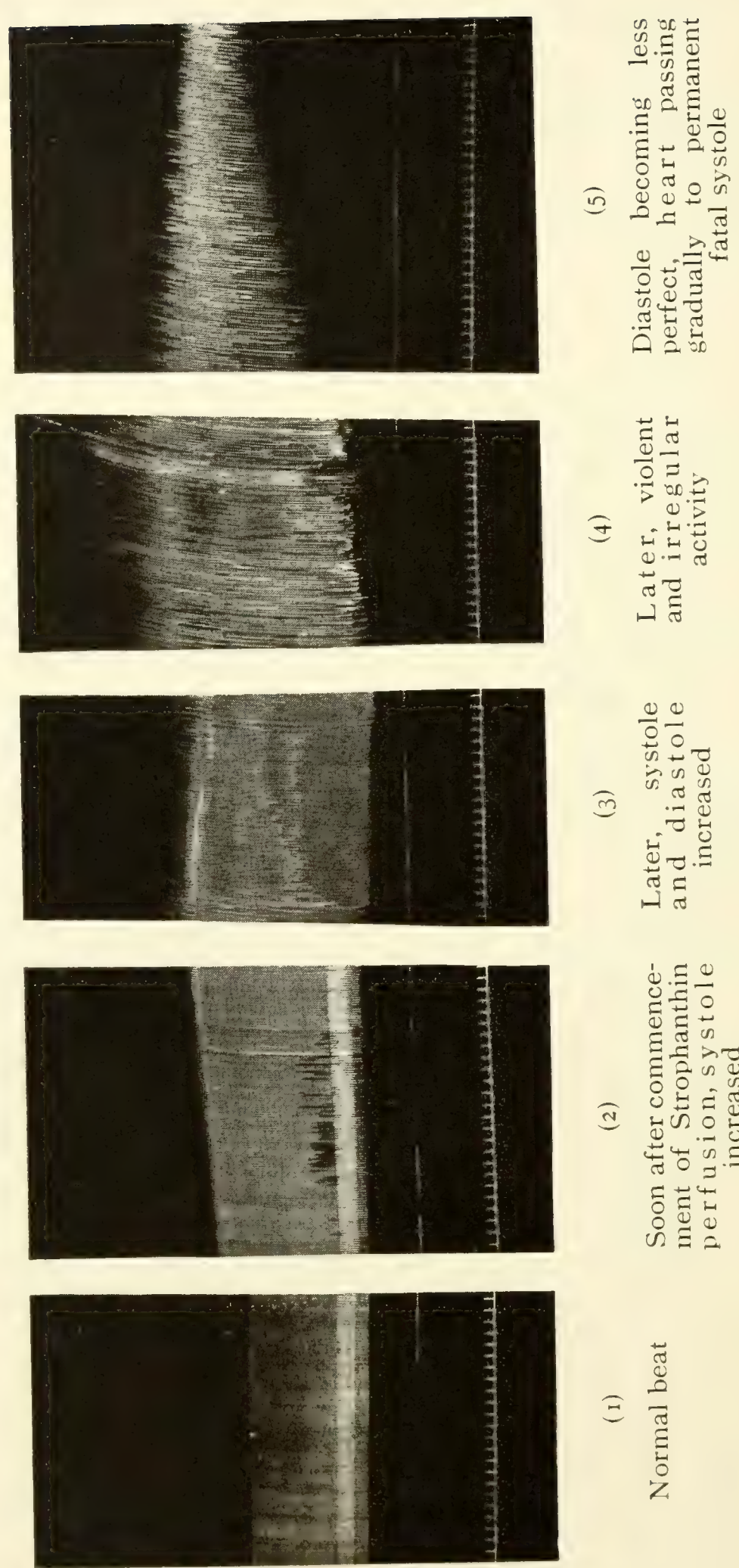
- (a) Effect on the blood-pressure of intravenous injection of
- (A) 0.00005 gm. of 'Hemisine.'
  - (B) 2 c.c. 'Ernutin.'
  - (C) 0.00005 gm. 'Hemisine.'

Showing the rise of blood-pressure and the subsequent reversal of the effect of 'Hemisine,' due to ergotoxine in the 'Ernutin.'



# FOUR STAGES IN THE ACTION OF STROPHANTHIN ON THE ISOLATED HEART

The heart of a rabbit was perfused with warm oxygenated Ringer's solution and the ventricular beat recorded, upstroke of the level indicating systole. Between 1 and 2 the pure Ringer's solution was replaced by Ringer's solution containing 1 in 150,000 Strophanthin



DESCRIPTION OF THE WELLCOME  
PHYSIOLOGICAL RESEARCH LABORATORIES

The original laboratories, established in 1894, were enlarged from time to time to meet the requirements of constantly increasing work, until it was found necessary to acquire more commodious premises. The new laboratories were established at Brockwell Hall, Herne Hill, London (Eng.), in the early part of 1899.

The new  
laboratories

Brockwell Hall is an old-fashioned country mansion, standing in its own grounds. The adaptation of these premises to the requirements of research work has been carried out with the greatest care, and no pains or expense have been spared in rendering their appointments as complete as possible, so that the Institution's highly-qualified staff of research workers have full scope for their energy.

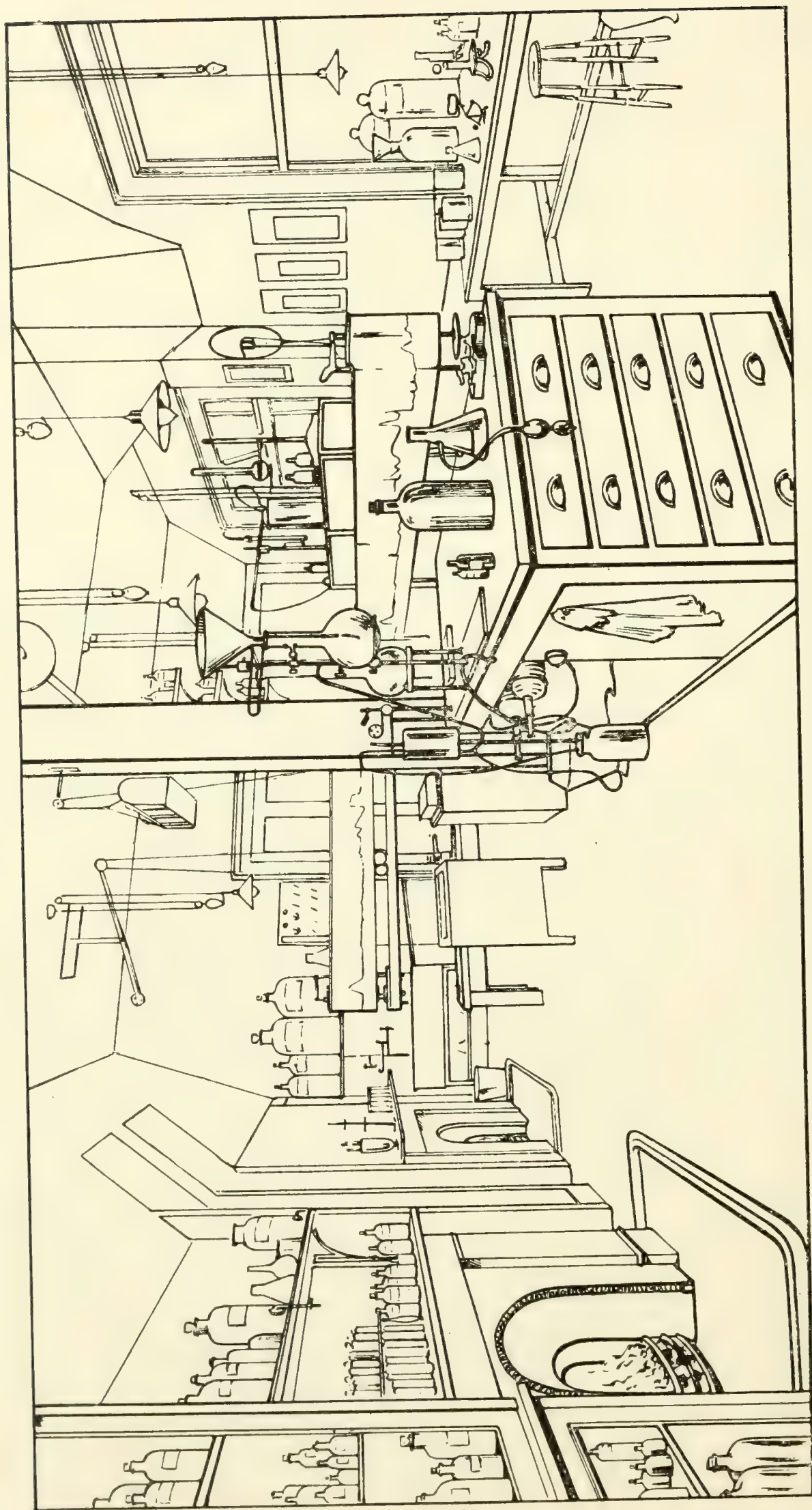
The room shown in the illustration on *page 336*, is the principal Bacteriological Laboratory. In this laboratory research is carried on in bacteriology and serum-therapeutics, injections are made for the standardisation of sera prepared in the establishment, and the elaborate series of sterility tests is made to which all sera are submitted before issue. On the other side of the entrance-hall is the principal Chemical Laboratory (*see page 338*), devoted to research on the nature of naturally occurring substances of biological importance, and the synthesis of new compounds likely to be pharmacologically and therapeutically interesting.

Bacterio-  
logical and  
Chemical  
Laboratories

A small Chemical Laboratory, the Secretary's office, a dark-room for photographic work, and the Library, are also on the ground floor. The Library is well supplied with standard works of reference, both chemical and physiological, and the current scientific literature of both these subjects, as well as that of bacteriology, is well represented.

The spacious cellarage contains, in addition to compartments for storage of various materials, a cold chamber,





THE PHYSIOLOGICAL LABORATORY

9 ft.  $\times$  7 ft. in floor area, kept constantly below freezing-point by means of an ammonia freezing installation, and also an incubating room.

The Physiological Laboratories are situated on the first floor of the building. In these rooms physiological and pharmacological research, and the physiological testing and standardising of various drugs and chemicals are carried on.

Physiological  
Laboratories

On the same floor are :—

(1) **The Directors' Office.**

(2) **Serum office.** A small room at the head of the staircase where all the records of procedures connected with serum production are preserved in perfect order for daily work and reference.

(3) **Serum Concentration Laboratories.** A room paved with cement is fitted with special glass benches for the manipulation of serum. It can be flushed all over with water to free the air from dust, and, with the door closed, can be sterilised with formalin. This and the adjoining laboratory are used for the processes involved in the artificial concentration of antitoxin. A special chemical laboratory is devoted to research in connection with these processes.

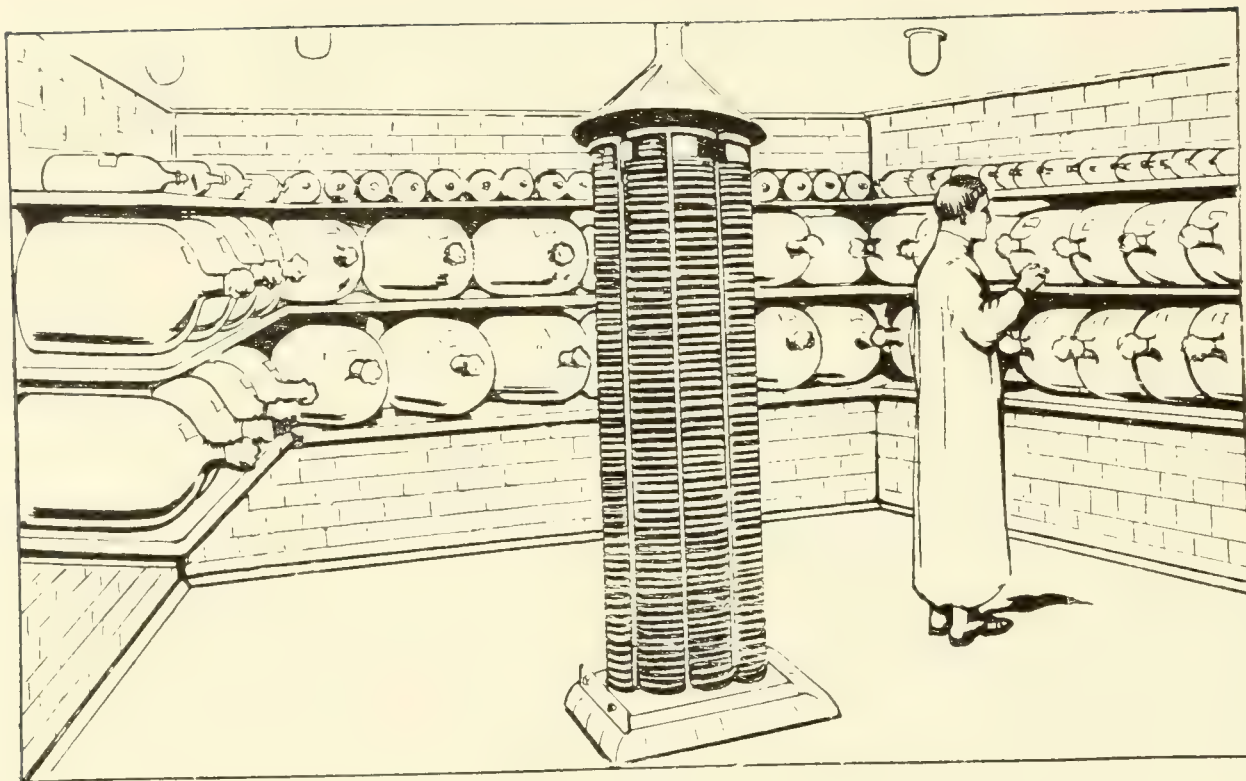
(4) **Vaccine Laboratory.** A room devoted to the preparation and standardisation of bacterial vaccines.

(5) **Serum testing room.** A room set apart for making dilutions of diphtheria antitoxic serum and preparation of injections of mixed diphtheria toxin and serum used in standardising the latter for issue from the laboratories (to Burroughs Wellcome & Co.). The standard apparatus employed is never moved from this room nor used for any other purpose.

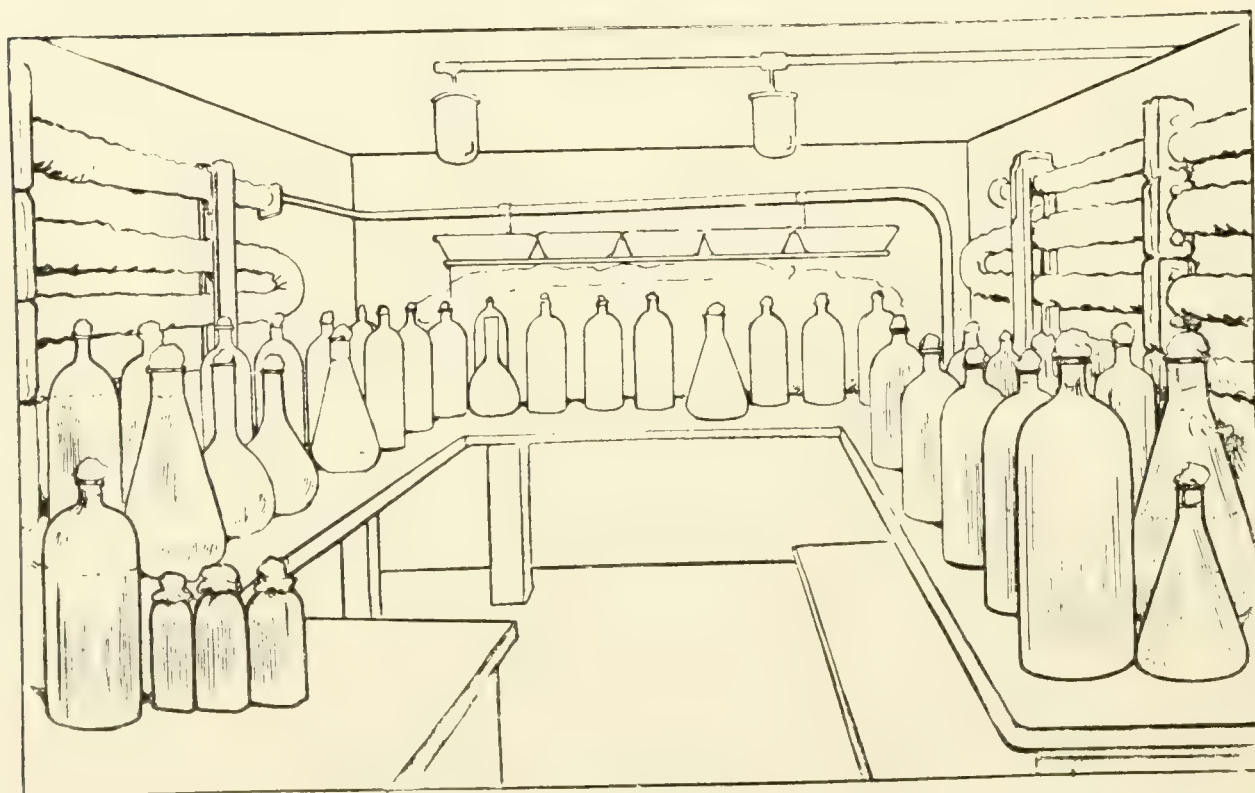
Two special laboratories are devoted to the preparation of media: one, a small pent-house, occupied entirely in the production of test-tube media for use in the bacteriological laboratory; the other, a commodious well-lit outbuilding communicating with the boiler-house, having a floor paved with cement, and the walls enamelled

Nutrient  
media





ONE OF THE INCUBATING CHAMBERS



COLD STORAGE CHAMBER

in order to facilitate cleaning. Here is made nutrient broth of various kinds on a large scale, to be used in the preparation of the various cultures and toxins for use in the stables. This laboratory is also used for the initial work upon crude animal material before it is sent to the chemical laboratory for further elaboration. Between this room and the boiler-house are two compartments, one for stores, the other to accommodate the large high-pressure steriliser which can deal with bottles, containers, etc., of large size.

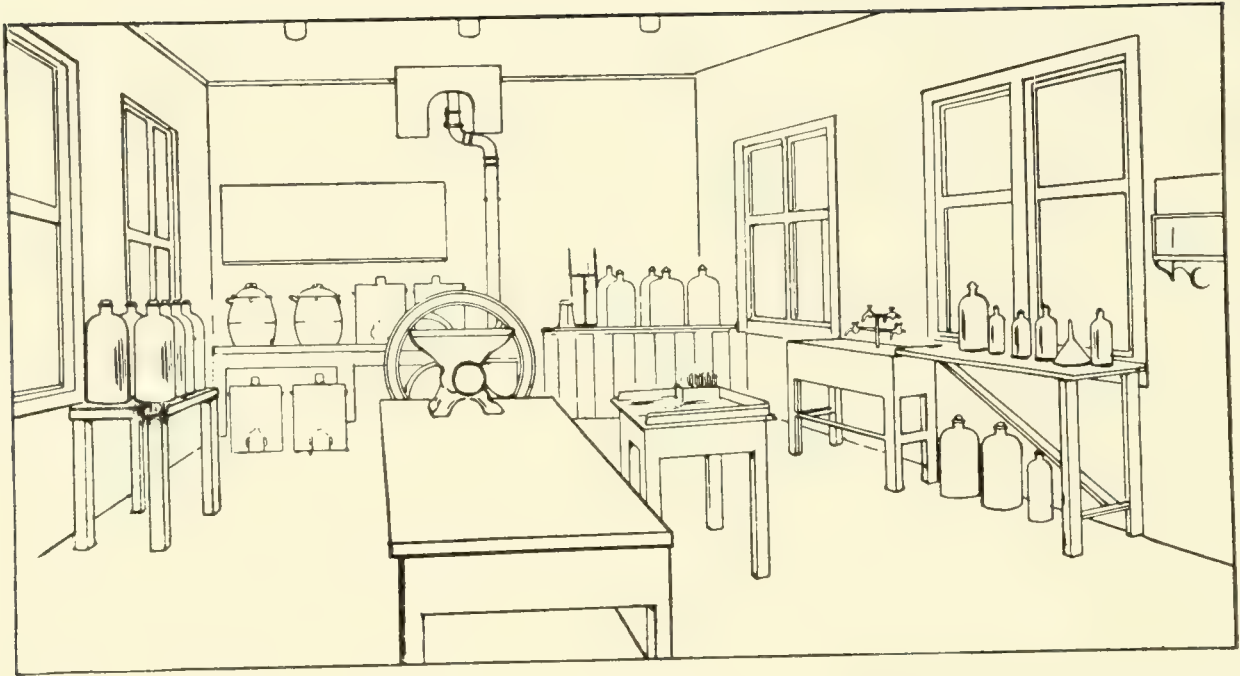
The serum, after being obtained in the collection-laboratory adjacent to the stables, is taken to a special building recently erected, where all further processes involved in separating it and measuring it into phials are now carried out. The building contains a cleaning-room for all apparatus used in the manipulations; a sterilising-room, for the heat-sterilisation of the same; and a phial-room, where the phials, in which the sera and vaccines are issued, are cleaned and prepared for sterilisation, and subjected to scrutiny after filling. The rest of this building is completely closed from the outside air, and ventilated by an ample current supplied by a large motor fan, placed outside in a special building. The air is passed through a germ-proof filter before it enters the main building; the rooms are constructed without angles or corners, and can be sterilised nightly with formaldehyde vapour, which the sterile, fan-driven air removes again in a few minutes. This sterile section includes:—

Germ-proof  
filters

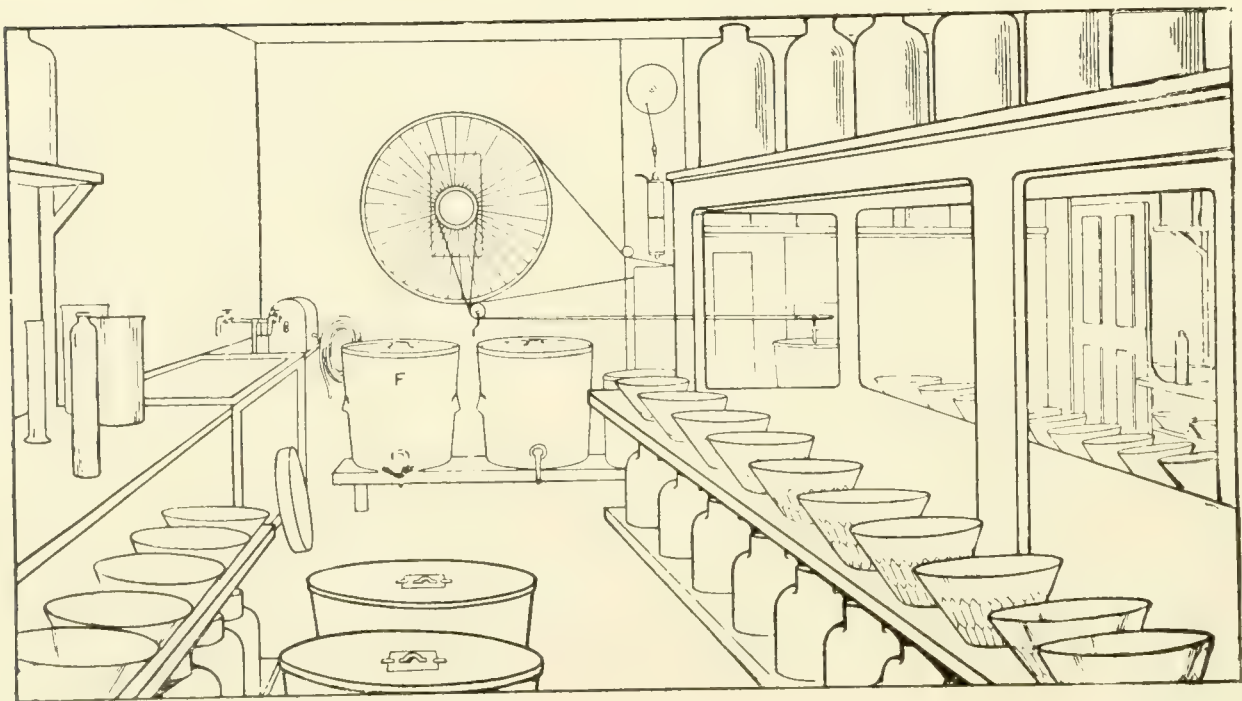
(1) A store-room in which the sera and vaccines are kept, ready to be run into the issuing-phials.

(2) Duplicate rooms in which the process of separating the serum from the clot is carried out. One of these rooms is always being sterilised while the other is in use. These rooms open out of the serum store, and can only be approached through it. A small chamber, in which the serum is mechanically driven through germ-proof filters into the storage bottles, also opens out of the store-room.





ONE OF THE ROOMS IN WHICH PHIALS ARE FILLED



SPECIAL LABORATORY FOR THE COLLECTION OF BLOOD  
AND SEPARATION OF SERA

(3) A room in which the serum is filled into phials. This is approached from the phial-preparing room by means of a double air-lock. Before entering the room the assistants must assume sterilised overalls, caps and goloshes, and sterilise the hands. Into this room the serum passes by tubes from the store-room, and each phial, as soon as filled, is passed under a glass screen to another assistant, who immediately seals the neck at the blow-pipe.

All packing of serum is done in an adjacent, separate building, built for the purpose, and self-contained in every way, which also provides amply for the storage of the materials used. Packing

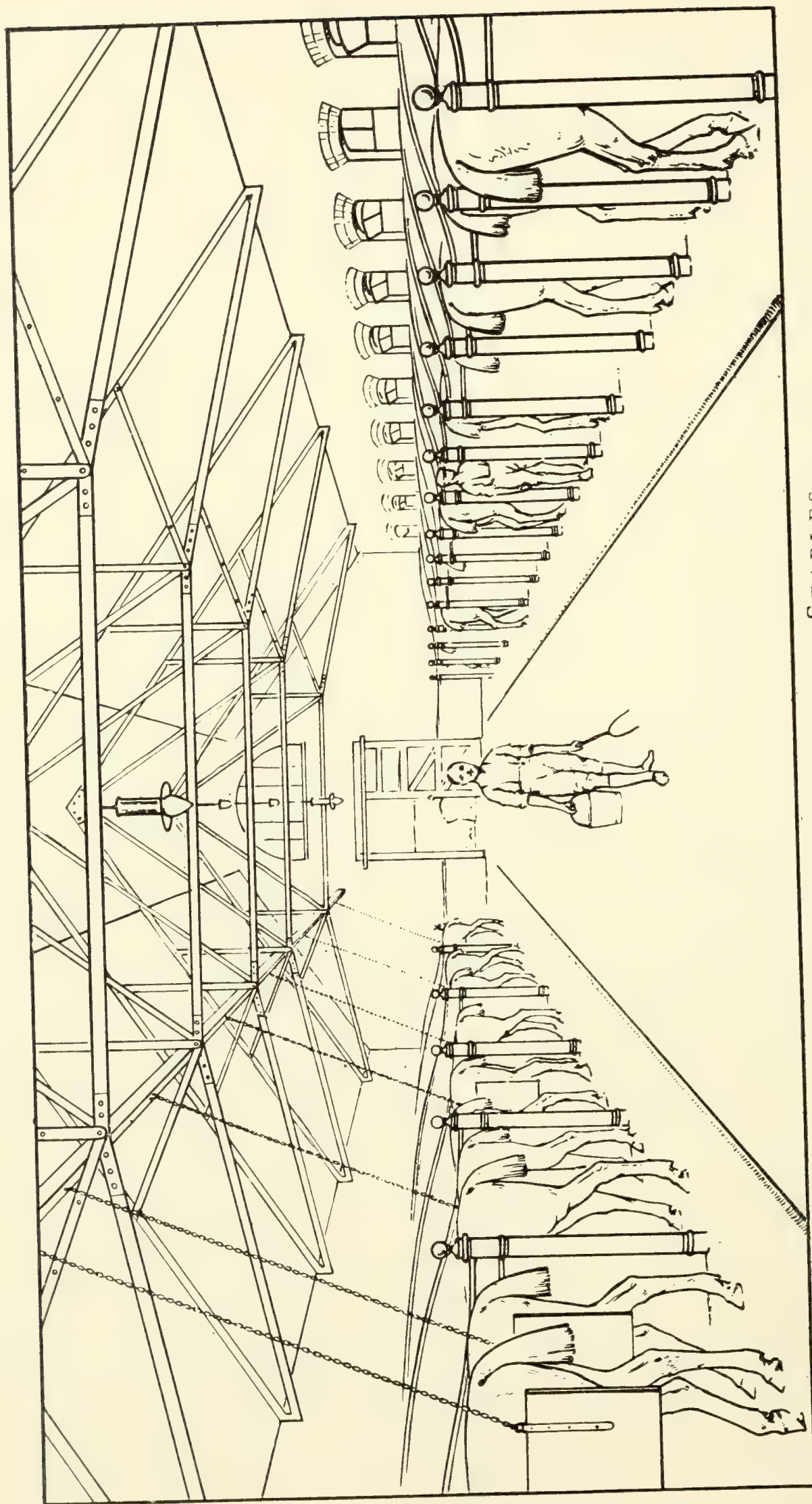
Between the main building and the animal houses a brick building of one storey has been erected. The one room on the ground level is specially fitted for bacteriological work. The floor is cemented, the walls tiled to a height of four feet, and all corners avoided by a rounding of angles. In this room manipulations are carried out connected with stock cultures, special research work, and the preparation of various vaccines. The cellarage, surrounded by a drained area, is divided into two rooms. The larger, 12 ft. square, is kept at a constant temperature, ranging from  $35^{\circ}$ - $40^{\circ}$  at different levels in the room. This is used for incubation on a large scale. Alongside it is a smaller room, in which a still atmosphere affords especially suitable conditions for bacteriological operations. Recently another building, containing three laboratories, and two rooms for keeping rodents, has been erected at a distance from the other buildings, for the purpose of special bacteriological research. Other  
Laboratories

#### THE STABLES AND OTHER ADJUNCTS

The stables are situated about one hundred yards from the laboratories. They are lofty, well lighted and well ventilated, and are fitted with every convenience and contrivance conducive to the well-being of the horses. The walls are of white glazed brick and cement, the floor being paved throughout with the best stable bricks.

The old stables and coach-houses of the Hall have been remodelled in accord with modern views, and are now used





INTERIOR OF ONE OF THE STABLES

for the testing of new horses with mallein and tuberculin before they are admitted to one of the large stables. Near by is a special laboratory for the collection of blood and separation of sera. This laboratory, like the stables, has been so built as to permit of the whole room being flushed with water, so that sera can be manipulated under the conditions necessary for ensuring sterility.

Collection of  
sera

An entirely new system of drainage for the laboratories, stables and other premises has been carefully carried out.

The laboratories, stables, outbuildings and grounds are electrically-lit, and are all in telephonic communication. The boiler, engine and dynamo necessary for the generation of the current used in the various motors on the premises are placed in brick and cement buildings adjoining the south-west side of the Hall. Near the boiler is a large cylindrical steriliser, constructed for a working pressure of 30 lb. The sterilisation of all large vessels containing nutritive media, etc., is effected here, as also of all vessels which have been used in the laboratories.

Electric  
installation

The grounds contain a large paddock, and also gardens for growing vegetables for the animals. A large store for fodder, with electrically-driven chaff-cutter, has recently been erected.

Paddock  
gardens

## THE ANIMAL HOUSES

A large animal house has been erected, which accommodates all the rodents required for the work of the laboratories. It contains full provision for the efficient isolation of animals inoculated with living cultures. The heating and ventilation of this building have been very carefully carried out, with a view to the health and comfort of the animals.

Efficient  
isolation

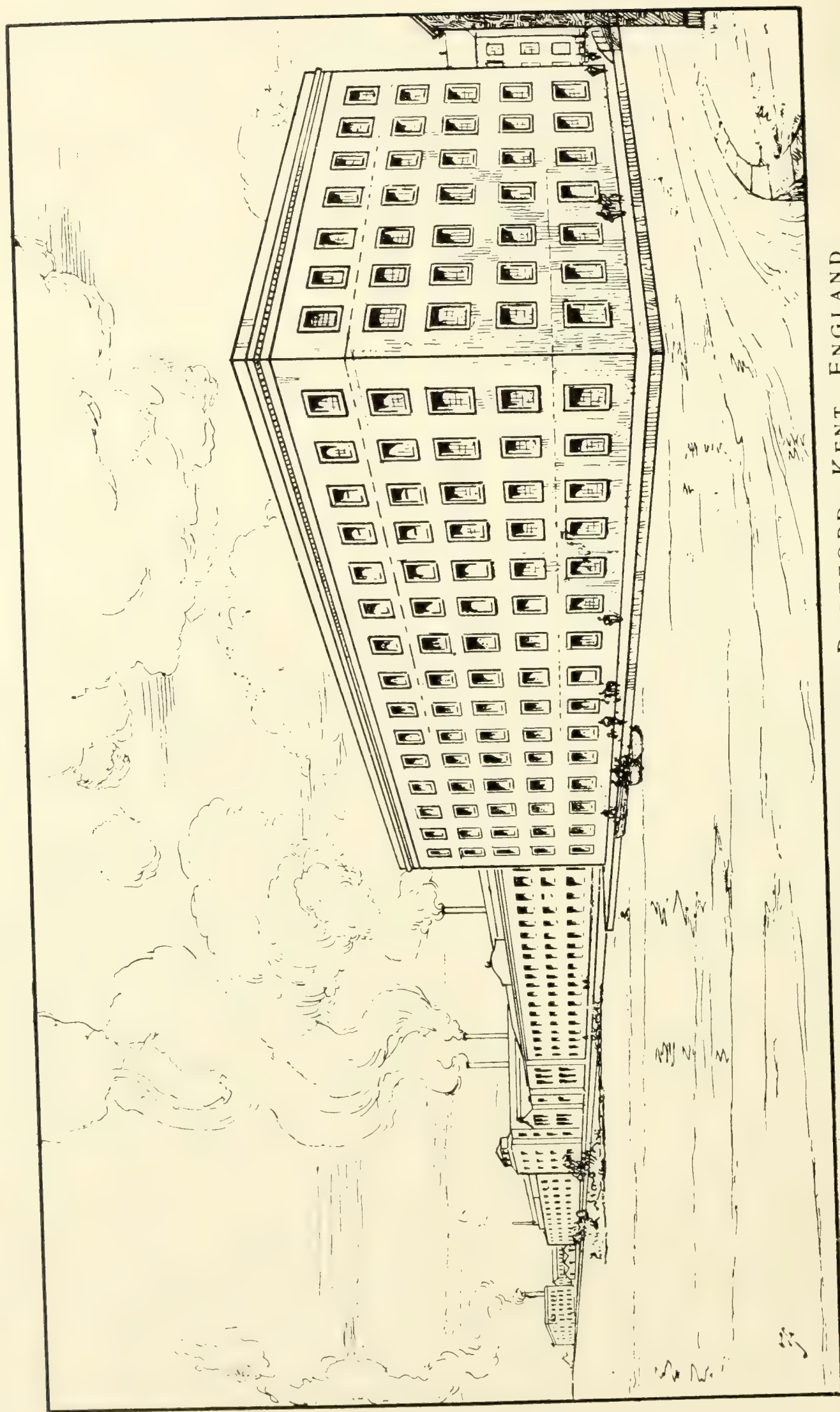
Another range of sheds contains well-drained, comfortable kennels for dogs, a stable for goats, and a steam-heated apartment for cats, communicating with a large open-air cage.





WEAPONS OF PRECISION  
PRODUCED BY  
SCIENCE AND INDUSTRY





'WELLCOME' CHEMICAL WORKS, DARTFORD, KENT, ENGLAND

THE WORK OF  
BURROUGHS WELLCOME & CO.

From the time of the founding of the firm, scientific advance has been steady and continuous. The keynote of this success lies in the firm's own original work, conducted under the most favourable conditions, as well as their ready recognition of all forward movements in scientific research, and adaptation of the results to the methods of modern production.

Keynote of  
success

"The rule of thumb is dead and the rule of science has taken its place"

"Science and Industry" has been the guiding motto of B. W. & Co. from the first. They have aimed at attaining and maintaining the highest possible degree of excellence in the products they issue. By keeping abreast of research work, and by promptly adopting the most scientific modern methods, they have not only kept pace with the latest developments in medicine and pharmacy, but have been pioneers in the introduction of some of the most notable agents employed in modern medicine, and have contributed largely to the great advances of the times.

"Science and  
Industry"

Patient and persistent research\* by a staff of chemical, pharmaceutical and physiological experts has yielded fruitful results. Not only has the firm satisfied the highest requirements of physicians by the purity, reliability and scientific precision of the products, but it has met the needs of conscientious pharmacists who pride themselves on the *supreme* quality of everything they dispense.

Results of  
scientific  
research

To supply medicaments characterised by purity, accuracy, uniformity and reliability has been the firm's policy from

---

\* Research pioneered by Burroughs Wellcome & Co. many years ago is still continued in their works by a highly-qualified staff. The Wellcome Chemical Research Laboratories, King Street, London (Eng.), and the Wellcome Physiological Research Laboratories, Brockwell Hall, Herne Hill, London (Eng.), are Institutions conducted separately and distinctly from the business of Burroughs Wellcome & Co., and are under separate and distinct direction, although in these two Institutions a large amount of important scientific work is carried out for the firm.





PORTION OF FRONTAGE  
BURROUGHS WELLCOME & CO.'S CHIEF OFFICES, LONDON  
Corner of Holborn Viaduct and Snow Hill  
facing Holborn Viaduct Station

its earliest days. This has been achieved by devising new appliances, by employing only the most scientific methods, and by conducting the various stages of manufacture under the direct supervision and control of specially-trained and qualified pharmacists and other experts. High appreciation has been accorded by physicians and pharmacists throughout the world to the "WEAPONS OF PRECISION" created by the firm. Untiring, strenuous endeavour and vast expenditure have been required to attain these successful results.

"Weapons of Precision"

#### WORKING IMPERIALLY

Mr. Joseph Chamberlain has taught the nation to think Imperially—Burroughs Wellcome & Co. work Imperially. It has been the special ambition of this firm to win back to England by actual merit some of the lost industries snatched away from the country in recent years by alert, enterprising rivals of other lands, who wisely and well apply science to their industries, and slumber not. B. W. & Co., never content with the time-honoured "rule of thumb" methods, have in a considerable measure gratified their ambition. Particularly in the production of Fine Medicinal Chemicals including the powerful alkaloids, glucosides and other active principles now so largely replacing the use of bulky and nauseous crude natural drugs, thus securing greater certainty and uniformity of potency.

Bringing back  
to England  
lost industries

In this work it has been the aim not only to equal but to surpass foreign production, and the results speak for themselves.

#### PIONEERS IN NEW DRUGS

The firm has pioneered the introduction of many new and valuable natural drugs, notable amongst which may be mentioned Strophanthus, or Kombé, the powerful African arrow poison which has proved so efficacious in certain heart disorders. Science and enterprise have in this instance

"Turned a deadly enemy into a valued friend"





*United States of America:*  
BURROUGHS WELLCOME & CO.'S  
Offices and Exhibition Rooms  
35, 37 & 39, West Thirty-third Street (near Fifth Avenue)  
NEW YORK CITY



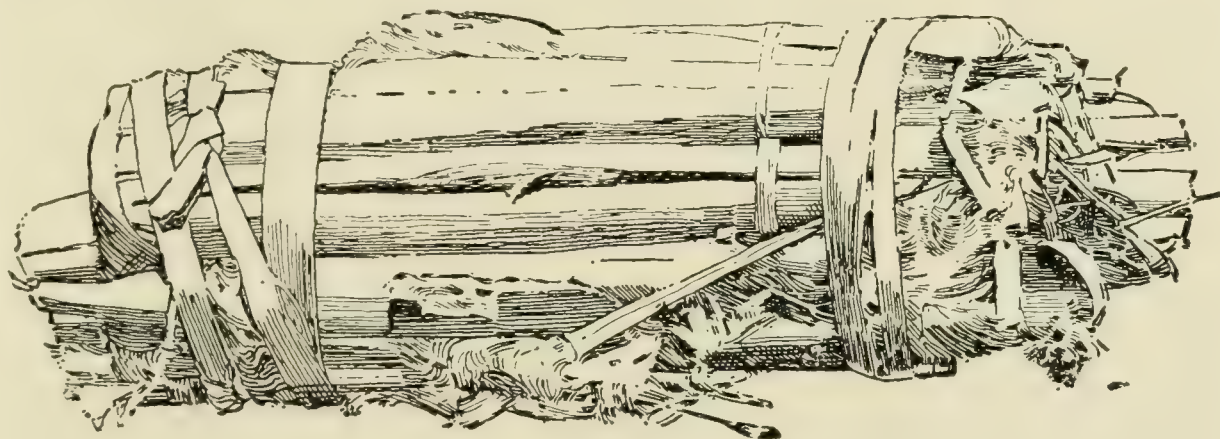
Sir THOMAS FRASER, of the Edinburgh University, first investigated and demonstrated the properties of Kombé from a comparatively small specimen, and B. W. & Co. immediately took vigorous steps to procure supplies of the drug regardless of expense and immense difficulties.

Pioneers in the introduction of Strophanthus

Emissaries were sent to collect the small reserves of arrow poison from the rude huts of many Central African warriors. In this way a fair quantity was accumulated, but at a cost of more than £20 per pound.

£20 per pound

Thus, the true Strophanthus Kombé was first introduced to England and to the world—B. W. & Co. were first in the field.



A bundle of the first consignment of strophanthus which reached Europe for Burroughs Wellcome & Co.

These earliest supplies were obtained quite regardless of monetary considerations, and, notwithstanding the great cost, parcels of the drug and its preparations were at once distributed, without charge, to leading physicians throughout the world. By this means the therapeutic properties of strophanthus were confirmed by investigators in various lands.

For more than a year this was the only supply of Strophanthus outside the "Dark Continent," and then B. W. & Co. again secured all that was obtainable, and were the only suppliers for many months. Strophanthus is now one of the approved remedies of the Pharmacopœias. In less than two years the firm was treating several hundred-weights of strophanthus seeds at a time, thus securing perfect uniformity in the activity

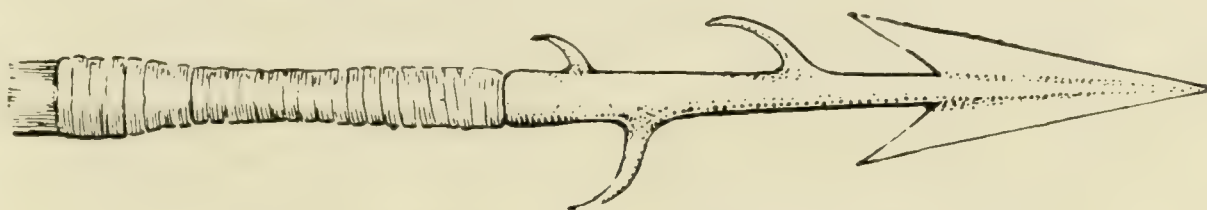
Products of B. W. & Co. secure precision of dose





*Italy:*  
BURROUGHS WELLCOME & CO.  
26, Via Legnano, MILAN

of the products, and enabling the dosage and action to be controlled with precision.



Arrow-head poisoned with strophanthus

Amongst those who were interested in the introduction of strophanthus were Sir JOHN KIRK (then of Zanzibar), and Dr. DAVID LIVINGSTONE, who referred to its employment by natives as an arrow poison, in his narrative of his expedition to the Zambesi. It was the intimate association which BURROUGHS WELLCOME & Co. have always had with the pioneers of African exploration which enabled them to be first in placing supplies of the drug at the disposal of the medical profession.



Plumed seed of Strophanthus Kombé

STROPHANTHUS KOMBÉ, the source of the drug, is a woody climber growing freely in many parts of Eastern Africa. From the seeds the natives prepare a paste with which they poison their arrows. The source





*Australia:*  
BURROUGHS WELLCOME & CO.  
481, Kent Street, SYDNEY, N.S.W.

The seeds are contained in follicles, and each bears a beautiful plume-like appendage springing from a delicate stalk. Each seed weighs about half a grain.

#### PIONEERS IN PHARMACOLOGICAL WORK ON ANIMAL SUBSTANCES

When renewed attention was drawn to the therapeutic action of certain animal substances, this firm pioneered the pharmacological work on the various glands, having already been long engaged upon researches on brain matter and other substances of animal origin, they were first to produce a stable and reliable product of the thyroid gland, and this remains the standard and accepted preparation amongst the medical profession throughout the world.

Although the principle suggesting and guiding this modern departure in therapeutics is the outcome of recent physiological research, the belief in the use of organs or tissues for the relief of human suffering, or for the production of certain physical conditions, is known to have existed from the earliest times.

Antient belief

The belief in the utility and value of animal glands and tissues in the cure of disease is not altogether the outcome of modern research, for we learn from Herodotus, fifth century B.C., that in his day, the people called Budini or Geloni "used the testicles of otters, beavers and other square-faced animals for diseases of the womb." From prehistoric times savage peoples have eaten the hearts of lions, tigers and other courageous animals, and even of human enemies, with the object of acquiring added valour in battle.

Among old-world medicines, compounds of the organs and tissues and excreta of mammals, birds, fishes and insects occupied permanent positions of prominence. They were included in the London Pharmacopœia issued by the Royal College of Physicians in 1676, and in Salomon's New London Dispensatory of 1684. The present increasing use of animal substances may be largely traced to the researches and enthusiastic advocacy

The use of  
animal  
substances





*South Africa:*  
BURROUGHS WELLCOME & CO.  
5, Loop Street, CAPE TOWN

of Brown-Séguard, though it must be admitted that such advocacy was exaggerated, and perhaps lacked dignity and reserve. In spite of his attitude, which experience has not justified, he, in some considerable measure, succeeded in establishing his contention that all glands, with or without excretory ducts, give to the blood, by internal secretion, principles always important and in most cases essential, to the general well-being of the body.

Organo-therapy, animal medication, and glandular therapeutics are among the terms now applied to the administration of organs or tissues or of the internal secretions of glands, in certain diseases, induced, or believed to be induced, by the degeneration, disease, defective development, or removal of the corresponding organs, tissues, or glands. Many diseases, arising from defective functions of particular organs, are now treated with these animal substances, and the principle has been established that the lessened or lost power of an organ may, in some cases, be restored by the administration of corresponding organs taken from healthy lower animals.

Modern  
knowledge

The work of Burroughs Wellcome & Co. on these animal substances has been directed not to the therapeutic but to the chemical and pharmacological side, and the production of active and staple products for the use of the medical profession, and in this they have attained marked success.

Amongst other animal products dealt with was the suprarenal gland, which yielded first to Abel and Crawford a powerful and highly valuable active principle under the title Epinephrine. Other workers produced modified products, but the active principle was first produced in a dry, soluble, active form in the Wellcome Physiological Research Laboratories, and is now issued by the firm under the title 'Hemisine.'

#### A NEW BLOOD-PRESSURE RAISING PRINCIPLE

More recent researches have led to the discovery at the B. W. & Co. Works Laboratories of a synthetic substance, 'Epinine,' possessing the valuable properties of the natural



active principle of the supra-renal gland and, in addition, showing certain marked advantages in use. Being a synthetic base which combines to form crystallisable salts, 'Epinine' can be readily purified, and the rise of blood-pressure produced by it is equal in degree and more prolonged than that due to the supra-renal active principle.

#### GOOD OR EVIL

Ergot, "the blessed and cursed blight of rye," which has wrought much good and much evil, is now greatly valued as a remedy, yet it destroyed countless lives during the grain plagues, called St. Anthony's fire, in the middle ages.

Ergot of rye has been one of the problems that has long baffled scientific workers. It was investigated in these same laboratories, and the true representative active principle was discovered, and is now issued as a standardised product, 'Ernutin,' of great power and uniform activity of immense importance to the medical profession.

#### THERAPEUTIC SERA

The Wellcome Physiological Research Laboratories were pioneers in the production of Anti-Diphtheritic Serum in the British Empire, and also supplied the first used in America. During the early days, and until the real value was conclusively demonstrated, all offers to purchase supplies of the serum were refused, but all that could be produced was freely placed without charge at the disposal of the principal clinics, hospitals and private medical men who had diphtheritic cases under treatment. These trials proved successful, and the 'Wellcome' brand of serum supplied by B. W. & Co. has continued to hold first place throughout the Empire. These laboratories have done a vast amount of original work in the whole range of therapeutic sera—and in vaccines, etc., and in many other organic bodies of importance in medicine.

Though these Physiological Research Laboratories are conducted under separate and distinct direction, and many

of the researches are solely of scientific interest as contributions to human knowledge, yet much work of practical value is carried out for the firm, the Principal of which founded the laboratories.

#### FINE CHEMICALS

The Wellcome Chemical Research Laboratories have worked in the same manner with benefit to science and to the firm, devising new chemical processes and producing new chemical agents, both organic and inorganic. The investigations of vegetable drugs and their representative principles have yielded highly important results, both in the discovery of new principles and in raising the standard of purity and potency of valuable well-known substances, notably Pilocarpine, Aconitine, etc., etc. The co-operation of these two research laboratories, with their efficient scientific staffs working under the guidance of the two highly-qualified Directors, distinguished for thoroughness and accuracy, is of immense importance to the firm.

Raising the  
standard

But the research work does not rest here. There is also in the experimental and analytical laboratories at the firm's works, a highly-skilled staff constantly engaged in research for the discovery of new active chemical and pharmaceutical substances, and for the improvement of those already known.

Amongst the notable discoveries are 'SOAMIN,' the new substance which has proved so successful in the treatment of Syphilis, and of the dread Sleeping Sickness so prevalent among the population of the Congo, Uganda and other parts of Central Africa; also 'NIZIN,' the new antiseptic, powerful, but free from many of the dangers of other antiseptics.

A large number of other important developments in chemistry and pharmacy have been made in the works laboratories, including the production of Chloroform of a standard that secures greatly increased uniformity and safety, and the confidence of the medical profession.

In the manufacturing departments every operation is studied with the view to new discoveries and improvements, and aiming to make daily progress.



## EQUIPMENTS

Completely fitted cases have been devised to meet the requirements of up-to-date medical men and others engaged in medical and sanitary science; for example, hypodermic, ophthalmic cases, urine testing, water analysis, bacteriological testing cases, etc.

Medicine and first-aid chests, cases, belts, etc., for military and naval purposes, for explorers, missionaries, travelling journalists, war correspondents, aeronauts, aviators, motorists, yachtsmen, planters; in fact, equipments for the air, for the earth, for the depths, and for every clime under every condition.

## HISTORY OF COMPRESSED DRUGS

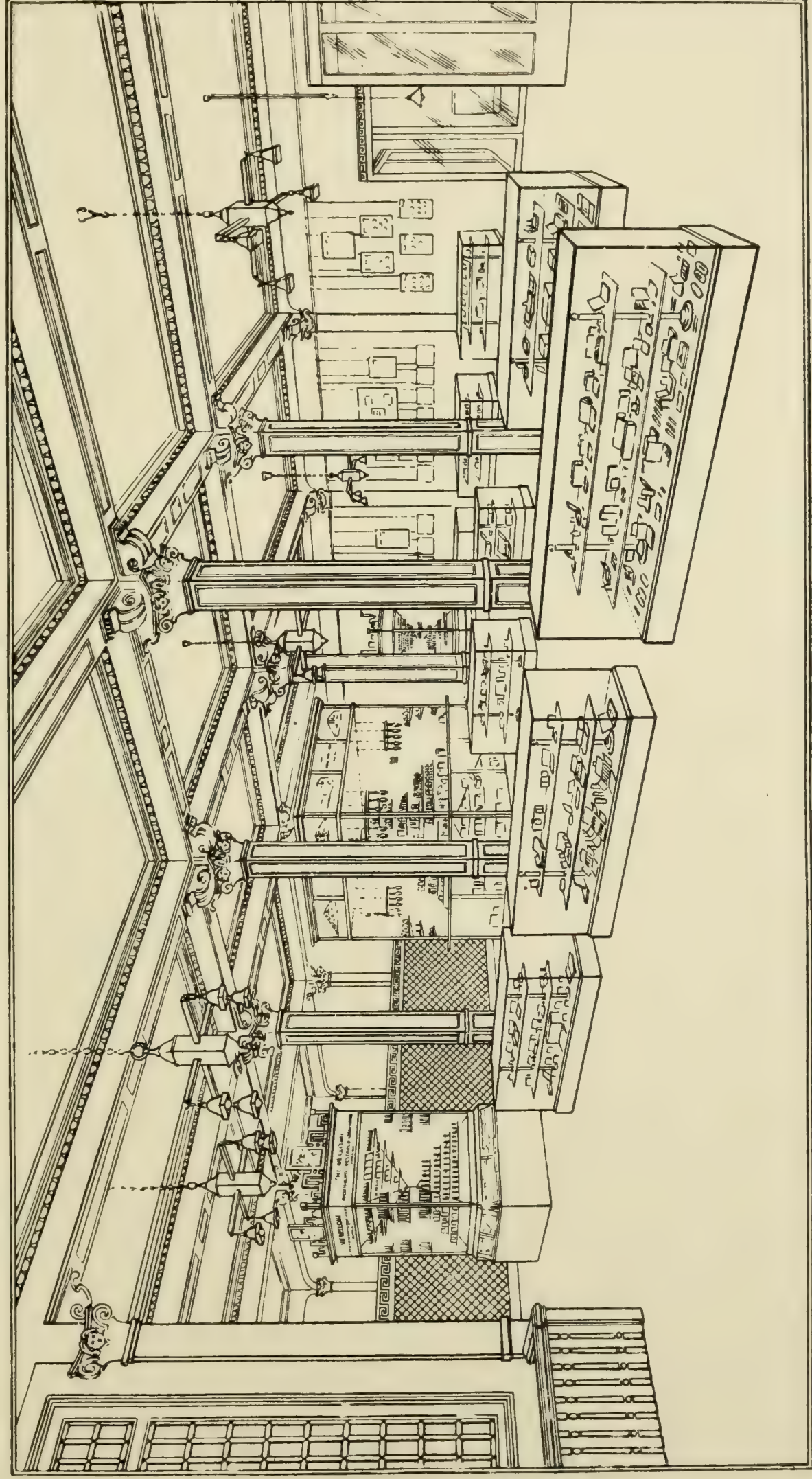
Origin of  
compressed  
products

B. W. & Co.'s  
work in  
perfecting

Burroughs Wellcome & Co. are successors to, and the sole proprietors of, the business of BROCKEDON, who, in 1842, originated compressed medicines in the shape of bi-convex discs—issued under the designation of “compressed pills.” The production of compressed substances has been developed and carried to a high state of perfection by B. W. & Co. This has been accomplished by research and the use of chemicals of exceptional quality, and by the employment of specially-devised machinery of rare accuracy. This exclusive machinery, invented by the firm, and produced at great cost, operates with the precision of the finest watch-work. By its aid the firm's specially-trained expert chemists are enabled to prepare compressed products for issue under the ‘Tabloid,’ ‘Soloid’ and other brands, of unique accuracy of dosage and of a perfection of finish never before attained. These products present medicines, etc., of so varied a character as to represent a range of dosage of 1/1000 of a grain to 60 grains or more.

World-wide  
appreciation

The qualities of purity, accuracy, activity and stability which characterise ‘Tabloid’ and ‘Soloid’ products have secured unusual appreciation and approval from medical and pharmaceutical experts, and these preparations are



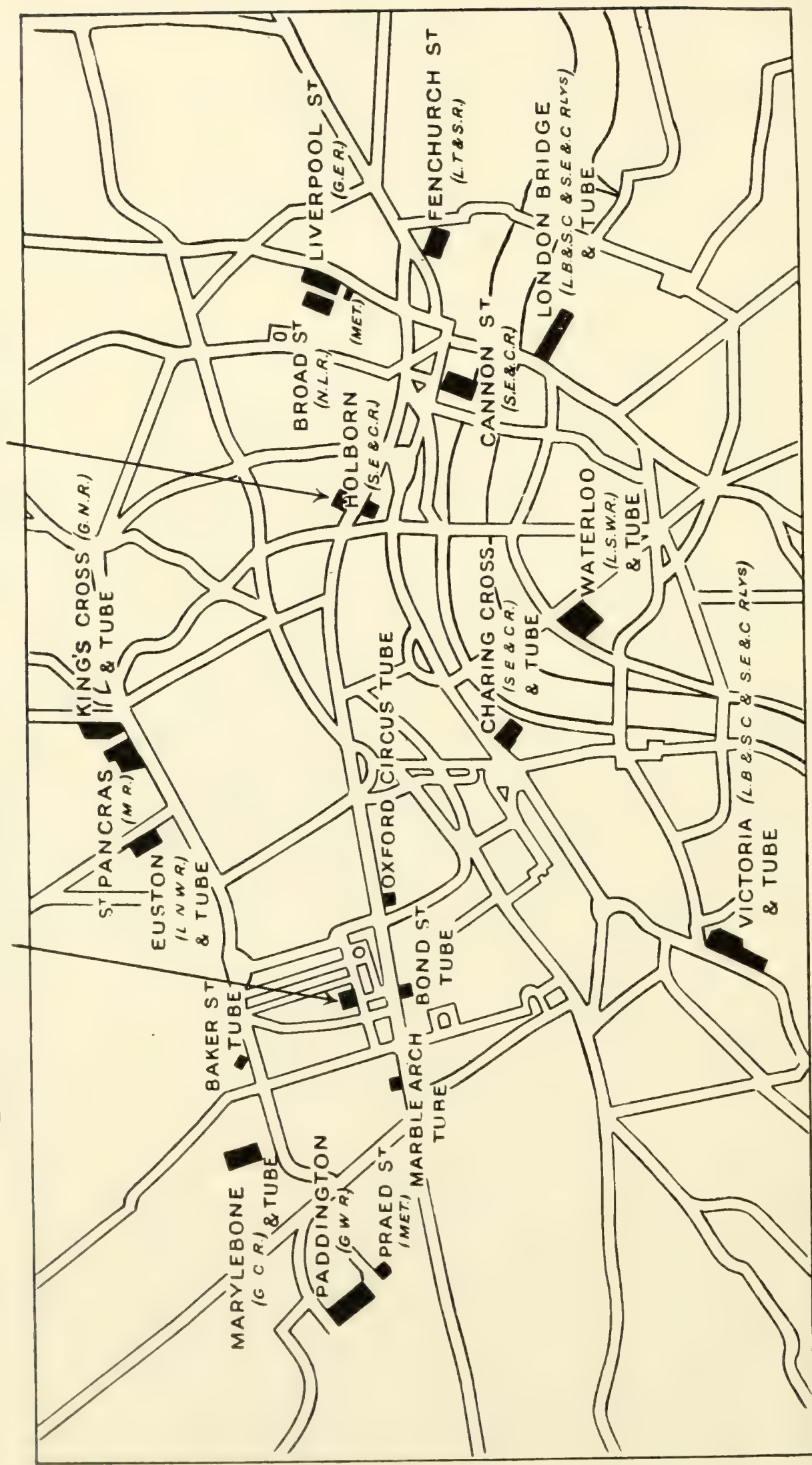
#### WEST END EXHIBITION ROOM

A well-equipped Exhibition Room has recently been opened by Burroughs Wellcome & Co. at 54 Wigmore Street, London, W., for the purpose of providing increased facilities for the inspection of medical equipments and other products of the firm. 'Tabloid' Medical and First-Aid Equipments suitable for Offices, Factories, Workshops, Mines, Expeditions, Theatres, etc., are shown in great variety. The accompanying illustration conveys some idea of the arrangement of the all-glass, dust-proof show-cases in which exhibits are displayed.



B. W. & Co. Exhibition Room

B. W. & Co. Chief Offices



Map showing situations of B. W. & Co.'s CHIEF OFFICES, and of 54, WIGMORE STREET in relation to London Railway Termini.

prescribed in private practice and in military and civil hospitals in all parts of the world.

#### MEDICAL AND FIRST-AID EQUIPMENTS

Burroughs Wellcome & Co. have, from the time of the founding of the business, made a special feature of studying medical and surgical requirements for expeditions to tropic and arctic and other trying climates, especially for the use of explorers, journalists and other travellers; for armies in camp, on the march, and in the battlefield.

Careful and prolonged enquiry and practical experimentation have enabled them to so perfect their equipments for these purposes that almost every military expedition and journalistic pioneering tour of recent years has been fitted out by the firm.

#### B. W. & Co.'s GENERAL OFFICES

The firm's chief offices and administrative premises are centrally situated in the City of London, facing Holborn Viaduct Station, and at the junction of Holborn Viaduct and Snow Hill. They are thus within a stone's throw of such historic sights as St. Paul's Cathedral, the Old Bailey (Central Criminal Courts), the Charterhouse, St. Bartholomew's, and Smithfield.

Chief offices

#### 'WELLCOME' CHEMICAL WORKS

The 'Wellcome' Chemical Works (*illustrated on page 360*), which form the principal manufacturing premises of the firm, are situated at Dartford, Kent, near London. On one side, the Works have direct water communication with London and the Docks of the Waterway of the Thames; on the other side they front on to the railway and so are in touch with the metropolis and the Continent.

Works

#### SEVEN B. W. & Co. ESTABLISHMENTS ABROAD

Burroughs Wellcome & Co. have fully-equipped establishments at New York, Montreal, Sydney, Cape Town, Milan, Shanghai and Buenos Aires. Photographs of the New York, Milan, Sydney and Cape Town Houses appear on *pages 364, 366, 368 and 370*.



# TYPICAL AWARDS

## AT INTERNATIONAL EXHIBITIONS

CONFERRED UPON BURROUGHS WELLCOME & CO.  
FOR THE SCIENTIFIC EXCELLENCE  
OF THE FIRM'S PRODUCTS

ST. LOUIS 1904	THREE GRAND PRIZES THREE GOLD MEDALS
LIÉGE 1905	SIX GRAND PRIZES THREE DIPLOMAS OF HONOUR THREE GOLD MEDALS
MILAN 1906	THREE GRAND PRIZES THREE DIPLOMAS OF HONOUR ONE GOLD MEDAL
LONDON (Franco-British) 1908	SEVEN GRAND PRIZES ONE DIPLOMA OF HONOUR TWO GOLD MEDALS
LONDON (Japan-British) 1910	FIVE GRAND PRIZES ONE GOLD MEDAL
BRUSSELS 1910	EIGHT GRAND PRIZES THREE DIPLOMAS OF HONOUR ONE GOLD MEDAL
BUENOS AIRES 1910	ONE GRAND PRIZE

MAKING IN ALL

MORE THAN **240** HIGHEST AWARDS

## THE 'TABLOID' BRAND FIRST-AID

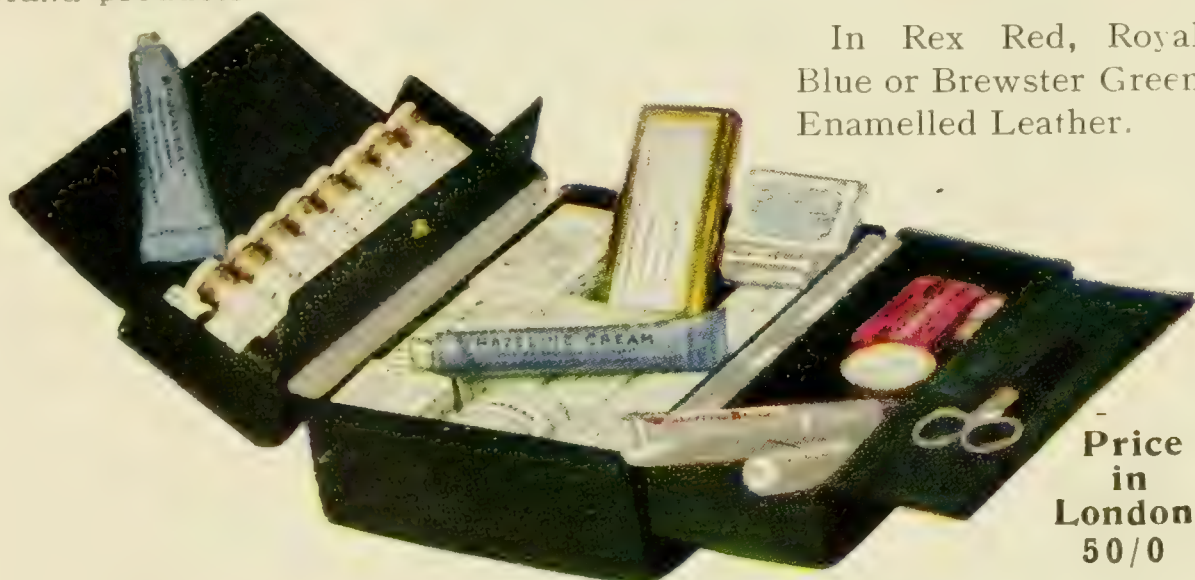
FOR

**Automobilists, Aviators, Yachtsmen, Sportsmen Travellers.  
Tourists, Boy Scouts, and residents in out-of-the-way districts.**

Compact outfits of bandages and first-aid accessories, etc., suitable for use in emergencies, when travelling, or at home, especially where medical aid is not immediately available.

### NO. 702. 'TABLOID' FIRST-AID

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' 'Hazeline' Cream, sal volatile, Carron oil (solidified), tourniquet, jaconet, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.



In Rex Red, Royal  
Blue or Brewster Green  
Enamelled Leather.

**Price  
in  
London,  
50/0**

No. 702. 'Tabloid' First-Aid (Brewster Green Enamelled Leather)  
Measurements  $7 \times 5\frac{1}{4} \times 2\frac{3}{4}$  in.

### NO. 715. 'TABLOID' FIRST-AID

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' sal volatile, Carron oil (solidified), jaconet, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.



In Rex Red, Royal  
Blue (as illustrated)  
or Brewster  
Green Enam-  
elled Metal, or  
in Aluminised  
or Black Jap-  
anned Metal.

**Price  
in  
London,  
10/6**

No. 715. 'Tabloid' First-Aid  
Measurements:  $7\frac{1}{2} \times 4\frac{1}{4} \times 2$  in.



NO. 708. 'TABLOID' FIRST-AID  
(For Nurses)



No. 708. 'Tabloid' First-Aid for Nurses  
Measurements:  $6\frac{1}{2} \times 3\frac{1}{4} \times 2$  in.

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified), jaconet, plaster, protective skin, camel-hair brush and safety pins: also a supply of 'Tabloid' Ammonium Carbonate for use in place of sal volatile and a tube of 'Soloid' Antiseptic products.

In Rex Red, Royal Blue or Brewster Green Enamelled Metal (*as illustrated*), or in Aluminised Metal.

**Price in London, 5/0**

Belt or Cycle attachment, 6d. extra

NO. 709. 'TABLOID' FIRST-AID  
(For Boy Scouts)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified), jaconet, plaster, protective skin, camel-hair brush, pins, etc.

In Rex Red or Royal Blue Enamelled Metal (*as illustrated*).



No. 709. 'Tabloid' First-Aid for Boy Scouts  
Measurements:  $6\frac{1}{2} \times 3\frac{1}{4} \times 2$  in.

**Price in London, 5/0**

Belt or Cycle attachment (*as illustrated*), 6d. extra

## NO. 712. 'TABLOID' FIRST-AID

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic

Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified) and jaconet, castor oil, plaster, protective skin, scissors, pins, etc., and seven tubes of 'Tabloid' and 'Soloid' Brand products.



In Rex Red, Royal Blue or Brewster Green Enamelled Metal (*as illustrated*), or in Aluminised Metal.

**Price in London, 10/0**

No. 712. 'Tabloid' First-Aid (Brewster Green Enamelled Metal)  
Measurements:  $6\frac{1}{2} \times 4\frac{1}{4} \times 2$  in.

## NO. 905. 'TABLOID' PHOTOGRAPHIC OUTFIT



A complete outfit of the celebrated 'Tabloid' Chemicals for developing, sepia toning, intensifying, reducing, gold toning, fixing, etc.

Fresh, reliable solutions without weighing or waste.

In Rex Red, Royal Blue, Imperial Green or Bright Scarlet Enamelled Metal (*as illustrated*), or in Black Japanned Metal.

No 905. 'Tabloid' Photographic Outfit  
Measurements:  $4 \times 4 \times 2\frac{1}{8}$  in.

**Price in London, 5/0**



## NO. 231. 'TABLOID' BRAND MEDICINE CASE

(As suggested by Sir W. Moore)

This outfit, owing to its strong well-built metal case and the very comprehensive nature of the contents, is peculiarly well adapted for use as a home medical equipment for residents in foreign countries or in out-of-the-way places.



No. 231. 'Tabloid' Brand Medicine Case  
Measurements:  $10\frac{3}{4} \times 7\frac{1}{2} \times 3$  in.

It was suggested by, and is fitted up in accordance with the instructions of, Sir W. Moore in his *Manual of Family Medicine for India*, and contains fifteen 1 oz. corked phials of 'Tabloid' and 'Soloid' products, minor surgical instruments and dressings.

In Black Japanned Metal. Weight, about 6 lb. 14 oz.

**Approximate Price in London, £3 17 6**

With modified fittings for Tropical countries, **£3 10 0**

When fitted with a thick felt cover, this case will bear the strain of rough transit to the most distant parts of the Empire without damage to its contents.

A 'TABLOID' BRAND FIRST-AID POCKET-CASE  
FOR  
AVIATORS, MOTORISTS AND SPORTSMEN

---

The charm of rapid movement through the air, on the earth, or above it, exercises an irresistible fascination, and gains more votaries daily for aviation and for motoring.

It is impossible to eliminate entirely all risk of injury from these attractive sports, and, unfortunately, accidents occasionally befall even the most careful and experienced.

This 'Tabloid' Equipment, No. 706, has been specially designed to provide, within the least possible space, what is necessary for rendering first-aid in cases of accident or injury, and has been carried on air voyages by such distinguished aeronauts as M. Paulhan, Mr. Grahame-White, etc. So that no one need be deterred from carrying a first-aid case by its bulk, the size has been limited to that of an ordinary cigarette case.



CLOSED

It contains one bandage, 3 yards by  $2\frac{1}{2}$  inches, one small package containing pins and compressed boric gauze, a metal box containing strapping plaster in detached pieces, mounted on tape, so that it can be used without scissors, safety pins and 'Vaporole' Aromatic Ammonia, for use as "smelling salts."

A tube of Carron oil (solidified) for use in case of burns or scalds is also included, a packet of jaconet, some of which may be placed over the oil, and forms an impervious covering, protecting the injured part from the air; and a little booklet of court plaster cut into convenient sized strips.



The case is made of aluminium, light yet rigid, with a fluted surface and a steel spring catch. It can be carried in the pocket under all circumstances without the slightest



'Tabloid' Brand First-Aid, No. 706. Measurements:  $3\frac{1}{2} \times 3 \times \frac{3}{4}$  in.  
Weight: 4 oz 1 dr.

inconvenience, and forms a real safeguard against the complications which may arise out of a neglected wound.

The preparation of a complete 'Tabloid' First-Aid outfit of such small dimensions has been rendered possible by the use of the pleated compressed bandages and dressings originated by Burroughs Wellcome & Co. A small quantity of gauze or lint can be removed from one of the packages, when required, without disturbing the bulk, and the remainder retained, free from contamination by dust or dirt, for future use.

Among the Grand Prizes awarded to Burroughs Wellcome & Co. by the International Jury of the Franco-British Exhibition, one was presented specially for Medical and First-Aid Equipments.

SOME HISTORIC FLIGHTS  
BY  
AIRSHIP  
AND  
AEROPLANE

The most famous aeronauts of recent times, including those whose flights are here recorded, have carried with them 'Tabloid' First-Aid Outfits, as their sole Medical Equipments, on their voyages through the air.





THE LONDON-MANCHESTER FLIGHT  
April 27-28, 1910

Reproduced from an actual snapshot, taken as Louis Paulhan was leaving Hendon on his epoch-making flight of 185 miles from London to Manchester, when he surpassed all previous records, and won *The Daily Mail* £10,000 prize. Inset is a portrait of Paulhan and a photograph of the 'Tabloid' First-aid Outfit which he carried with him throughout his historic flight.



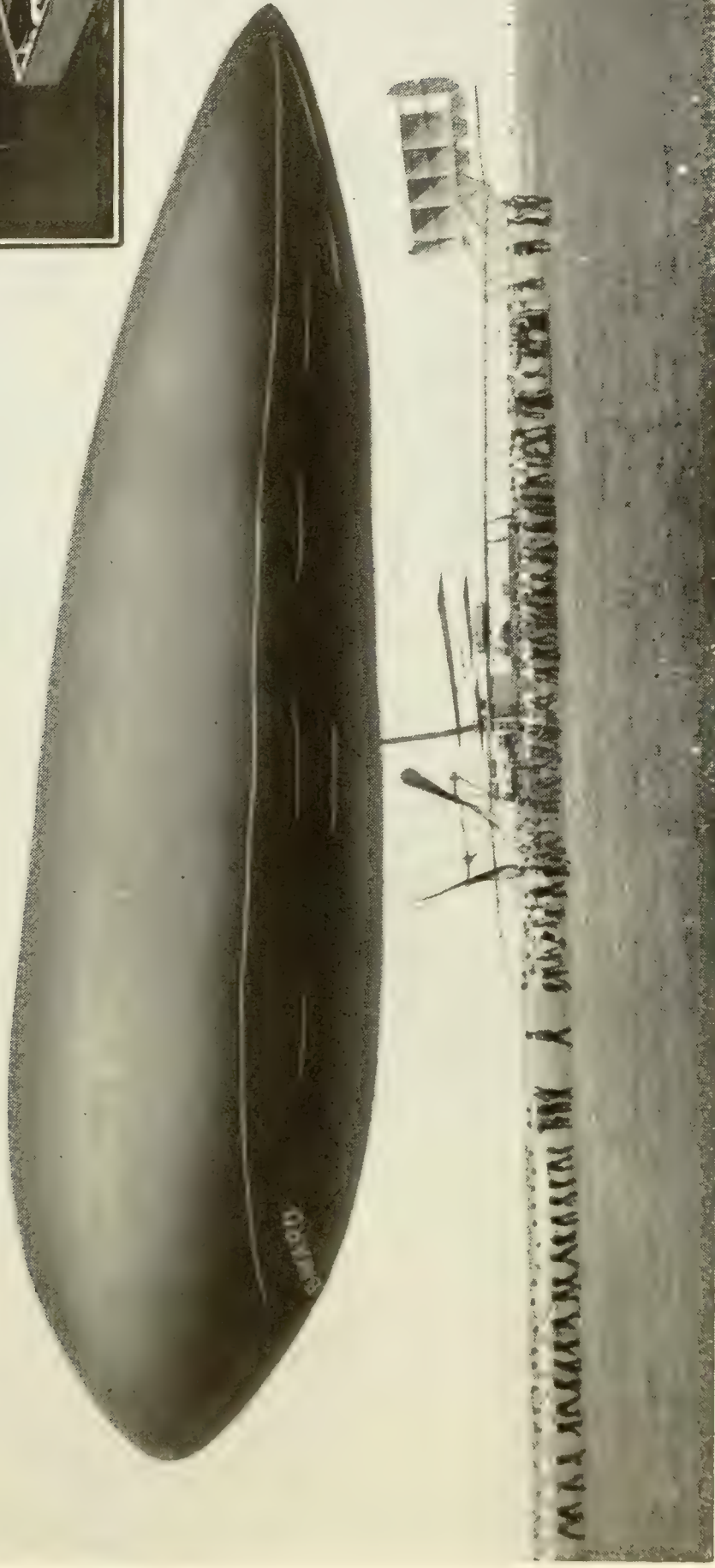
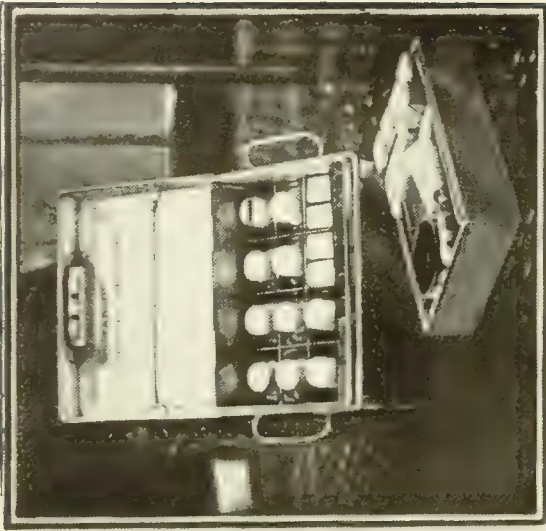


# THE TRANS-ALPINE FLIGHT BY SEÑOR CHAVEZ

## The "Mechanical Bird of the Mountains."

In September, 1910, Señor Chavez performed the most remarkable feat of aviation in flying on a Blériot Monoplane from Brieg, over the mountains, to Domo d'Ossola. At Gaby, where he had to choose between the Gondo and the Monchera routes, he selected the former, realising that he was not high enough to clear Monchera Pass. Having accomplished this splendid flight over the Alps, during which he rose to a height of 6000 feet, in the act of alighting he fell with the motor upon him, an accident which injured him beyond reach of medical aid of any sort, and cost him his life. Inset are photographs of Señor Chavez and of the 'Tabloid' First-Aid Equipment which he carried over the Alps.

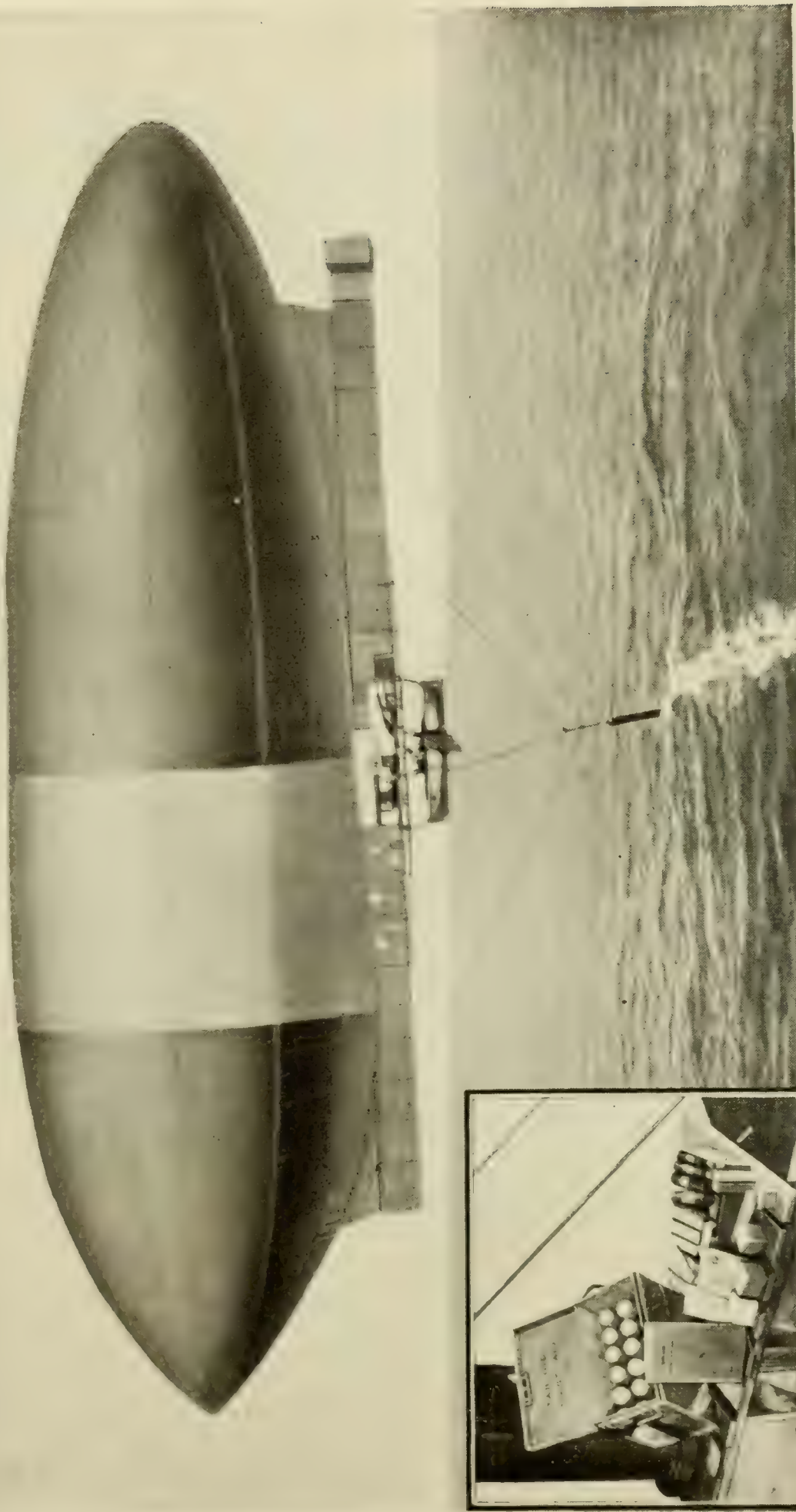




FROM PARIS TO LONDON

The voyage of the Airship "Clement-Bayard II," October 16, 1910

This dirigible, designed by M. Alphonse Clement, crossed the channel from Lamotte-Bremil (near Paris) to Wormwood Scrubbs. The crew numbered seven in all, and included M. Clement, the designer and constructor; M. Sabathier, engineer; two pilots, two mechanics; and Mr. W. du Cros, representing the British Parliamentary Aerial Defence Committee. The "Clement-Bayard II" has since been purchased by the British War Office for £18,000. Inset is a view of the "Tabloid" First-Aid Outfit which was specially designed for the "Clement-Bayard II" and carried on this historic air voyage, constituting the sole medical



### THE FLIGHT OF THE AIRSHIP "AMERICA"

Mr. Wellman and five companions started from Atlantic City, October 15, 1910, with the intention of crossing to Europe, but were driven out of their course. After remaining in the air 72 hours and covering a distance of 1008 miles, they were rescued by the R.M.S. "Trent." They carried with them, as their sole medical equipment, a 'Tabloid' Medicine Chest, No. 256, and after their return Mr. Wellman wrote the following report:—

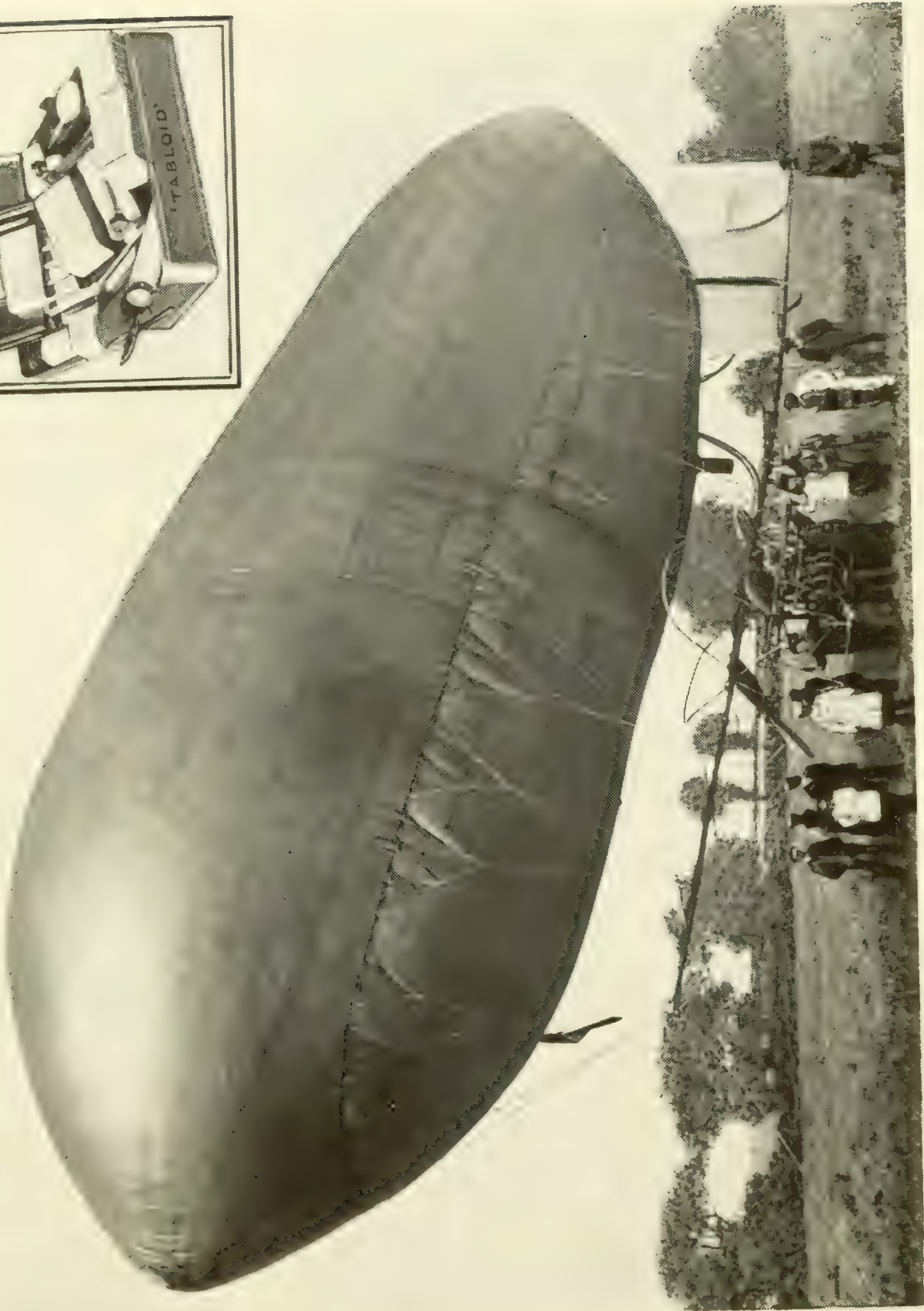
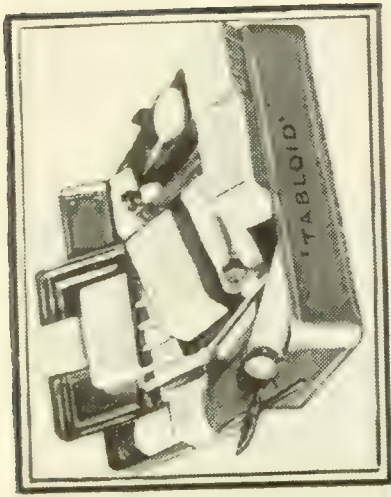
THE WALDORF-ASTORIA HOTEL,  
NEW YORK, *Nov. 20, 1910*

DEAR SIRS,—We are glad to inform you that your 'Tabloid' Medical Equipment was the only one carried in the Airship "America" during our thousand mile flight over the Atlantic Ocean. We had several occasions to use its contents for minor troubles, and found it complete and wholly satisfactory, which was but repeating the experience I have had with your equipments in my expeditions to the Arctic regions.

Sincerely yours,

*Walter Wellman*



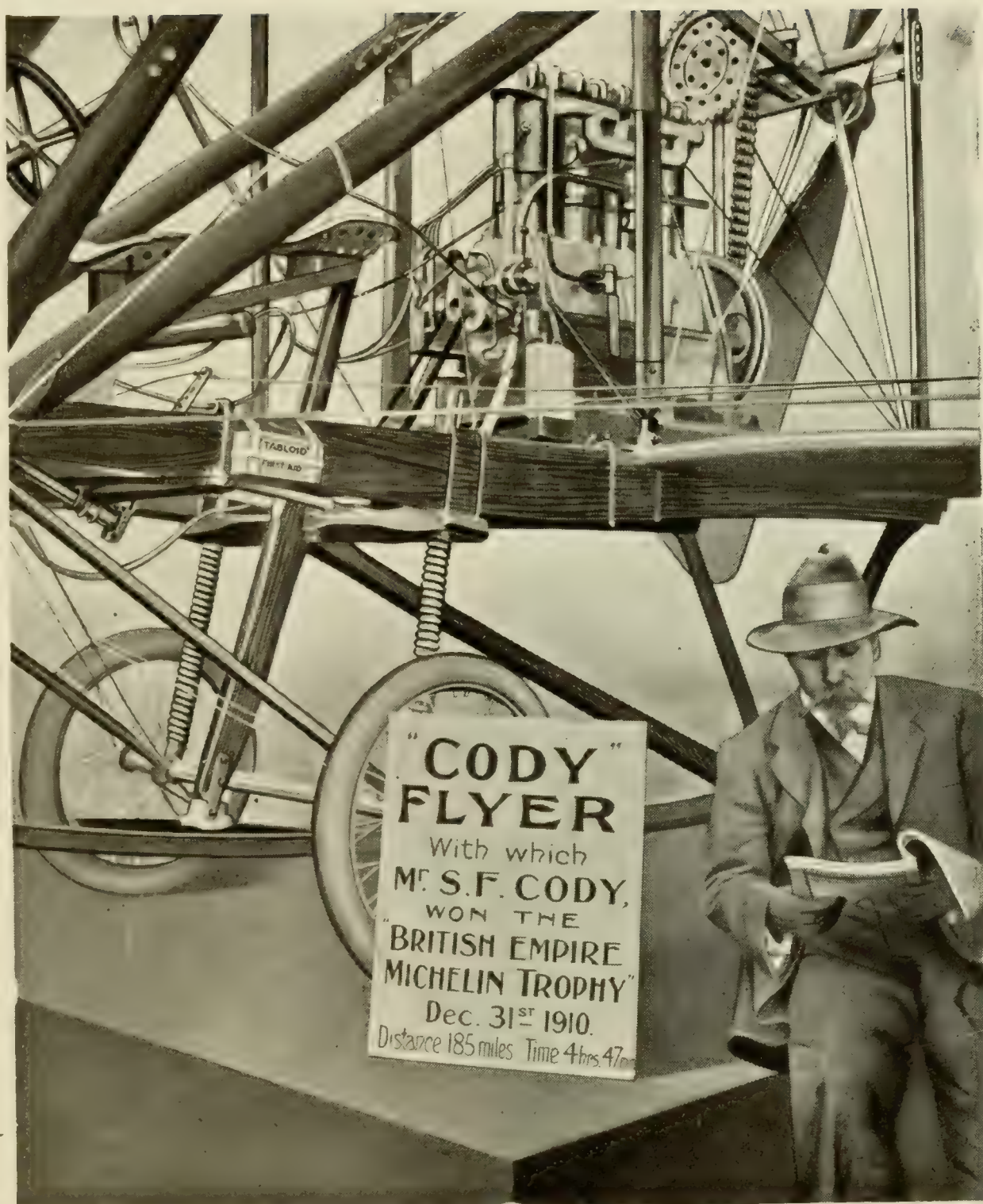


### THE LONDON TO PARIS FLIGHT

The "Willows" Airship. November 4-5, 1910

Mr. E. F. Willows, in an entirely British-built airship with 35 h.p. engines, having sailed from Cardiff to London, started for Paris on November 4, accompanied by one mechanic. In crossing the Channel they encountered dense fog and a strong wind, and, on arriving above the coast of France, they rose to a height of 5,500 ft. In spite of a slight accident to the airship, they effected a landing in safety near the Château of Genois, in the parish of Corbeham, a few miles from Douai. Inset is a picture of the 'Tabloid' First-Aid Outfit, No. 715, carried by Mr. Willows on this occasion.





#### CODY

Mr. S. F. Cody, an American who has become a British Citizen, and has done important work for the War Office, uses an aeroplane of his own design.

He has made numerous successful flights, and was the winner of the Michelin Cup in 1910. He carries a 'Tabloid' First-Aid as his medical equipment.





KEITH-DAVIES

Mr. Keith-Davies was the first man to fly in India, where he has made some admirable flights, winning special distinction at the Allahabad Exhibition.

'Tabloid' First-Aid forms part of his equipment for his aerial voyages.





#### GRAHAME-WHITE

Mr. Claude Grahame-White made some remarkable journeys in the course of his plucky attempt to win the "Daily Mail" £10,000 prize; one flight being from London to Rugby, a distance of 82 miles, in 2 hours 5 minutes.

He has since flown from the Brooklands track to Ranelagh, a distance of 24 miles, in 20 minutes.

In 1910, at the great aviation meeting at Belmont Park, New York, Mr. Grahame-White won for England the Gordon-Bennett Cup, and in connection with the same meeting made a memorable flight round the Statue of Liberty.

A 'Tabloid' First-Aid is always to be found on board his aeroplane.





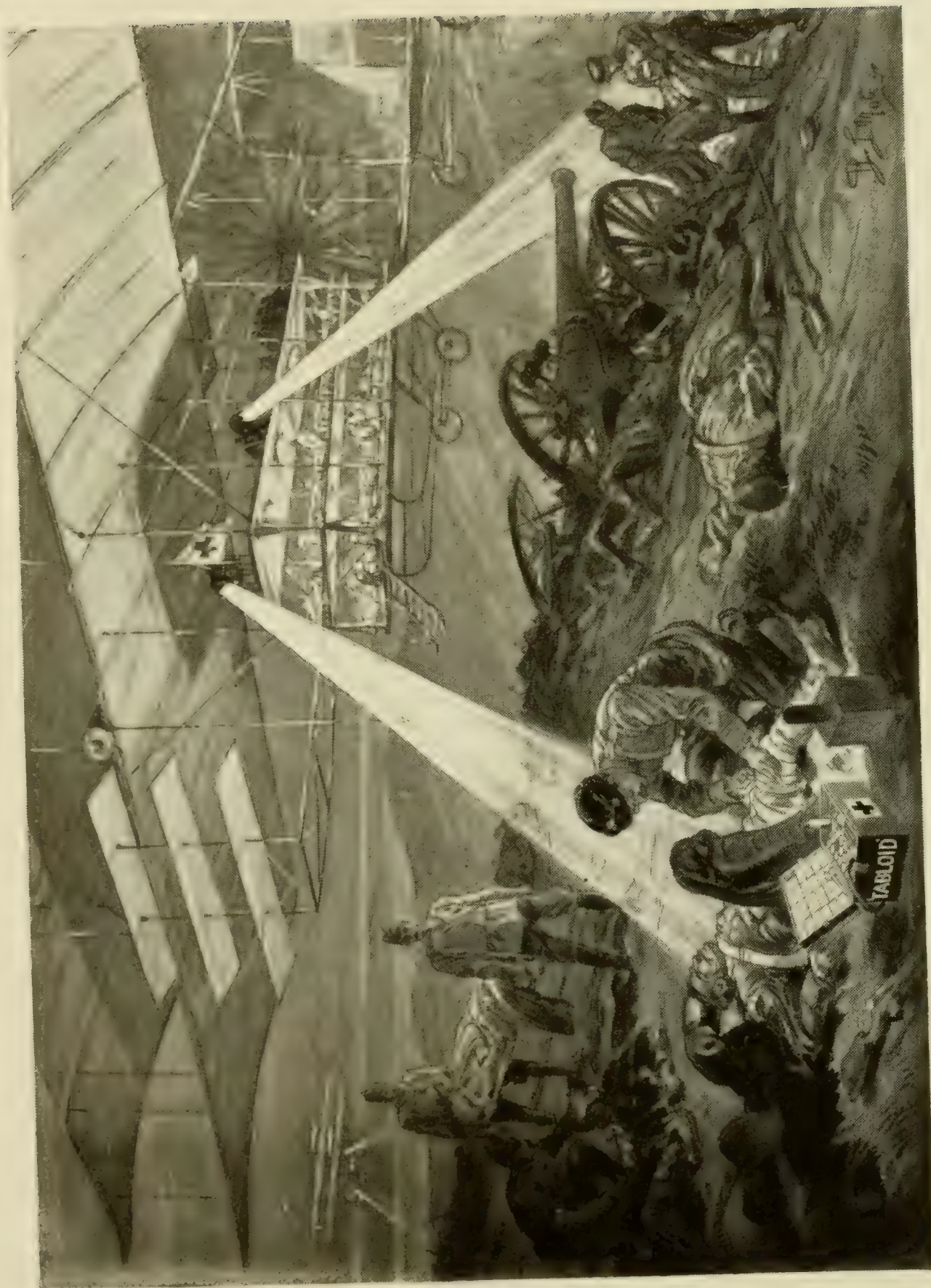
#### SOPWITH

By achieving the best performance on an All-British aeroplane, namely, a flight of  $107\frac{3}{4}$  miles, Mr. T. Sopwith won the Baron de Forest £4000 prize.

On February 1, at the request of H.M. the King, he flew from Brooklands to Windsor, and alighted in the grounds of Windsor Castle. On this occasion Mr. Sopwith had the honour of being presented to the King and Queen, who inspected his aeroplane.

The convenient position of his 'Tabloid' First-Aid Outfit is seen in the photograph.





A GLIMPSE OF THE FUTURE





A GOOD CATCH

(From a negative by J. F. Moore)

Exposure  $\frac{1}{650}$  second; developed with 'Tabloid' 'Rytol' Universal Developer



## MODERN METHODS IN PHOTOGRAPHY

Every age has had its special predilections and its own favourite vehicle of artistic expression—there has been an age of marble and an age of ivory, an era of huge mural paintings and a time when dainty miniatures were most in vogue. Epic poetry and the writing of voluminous letters delighted the eighteenth century and disappeared in the twentieth. On the other hand, the art of the camera with its brilliant realism and poignant actuality has appealed with irresistible force to the modern spirit and, without ousting any of the older methods of delineation, has become the helper and servant of all. So important is the position in the national life, taken by photography at the commencement of the present reign, that it may be regarded as the characteristic art of the age.

The  
characteristic  
art of the age

Moreover, its pursuit is no longer hedged about by the difficulties and inconveniences which at first beset it. The wet plate process is practically obsolete, and in its place plates and films of convenient size, and hand-cameras of excellent design, and in endless variety, are now offered to the amateur on every hand.

The method of making chemical solutions has also been reformed, and instead of bulky bottles of liquid for developing, toning, intensifying, etc., it is sufficient to provide oneself with 'Tabloid' Chemicals which occupy a minimum of space, and achieve a maximum of efficiency.

'Tabloid' Photographic Chemicals are pure chemicals compressed into small bulk, but yet more readily soluble than the same chemicals in crystallised form. These products each contain a precise weight, so that the trouble of weighing or measuring is entirely obviated.

Chemical  
difficulties  
solved

The advantages which 'Tabloid' Chemicals possess in home use are intensified when development and similar operations have to be conducted under trying conditions. This wonderful compactness is well shown by the coloured illustration. A complete chemical outfit of 'Tabloid' products is comfortably carried in the pocket or wallet without danger of trouble consequent on breakage.



Not only do 'Tabloid' Photographic Chemicals rid development, toning and other processes of all the uncertainties which accompany the use of impure chemicals and stale solutions, but they also remarkably simplify these operations, and impart to them a scientific precision which cannot otherwise be obtained.

All developers and chemicals essential for the practice of photography at home and abroad are issued as 'Tabloid' products, but to meet the special needs of travellers, tourists and amateur photographers who require the utmost condensation and the widest utility in the equipment they carry, Burroughs Wellcome & Co. have issued, as the result of special research and wide experience, a developer which is universal in utility and unique in compactness. This is 'Tabloid' 'RYTOL' Universal Developer. It is so compact that the materials for 88 ounces of solution occupy only the same space as *one* ounce of fluid. It is so universal in application that it will develop plates, films, bromide and gaslight papers as well as lantern slides with equal facility and equal certainty. It makes a bright clear solution even with water which, with ordinary chemicals, becomes cloudy and discoloured. The importance of this to travellers who are forced to use whatever water is available will be readily appreciated.

#### CORRECT EXPOSURE IN ALL LANDS

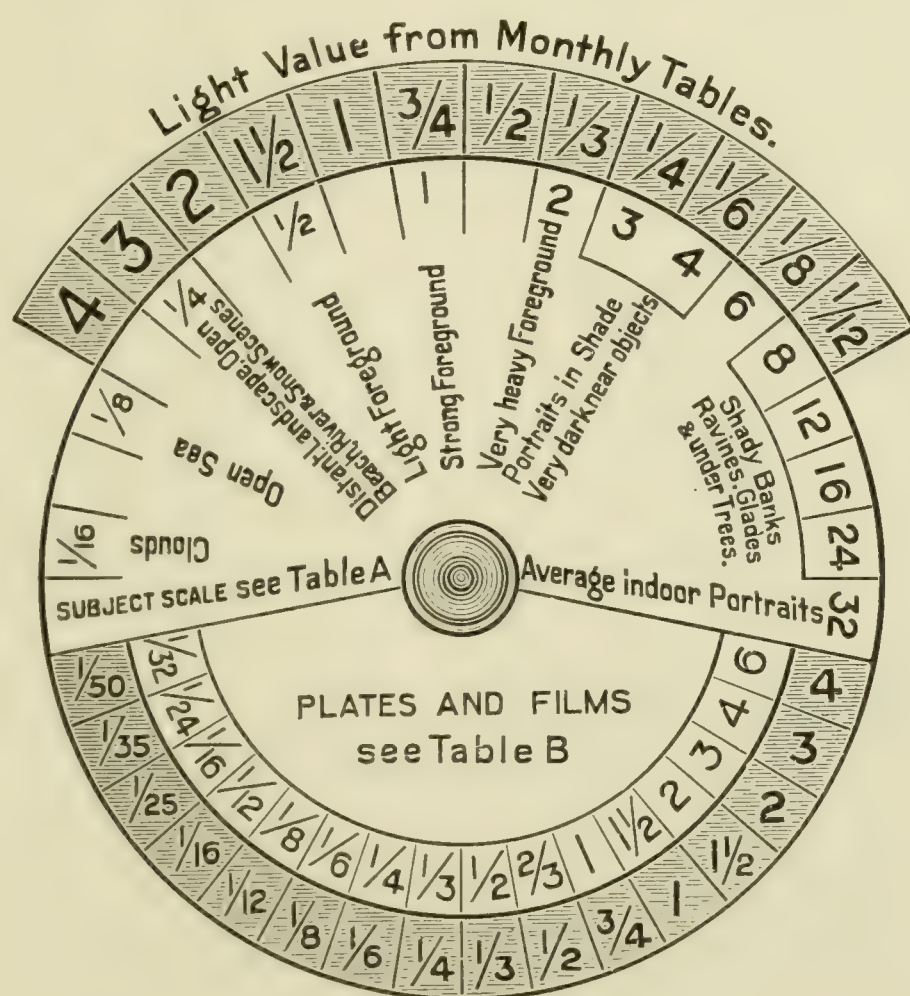
The photographer who desires to obtain pictures of places which he may never re-visit, of moving objects, or of dramatic scenes of special interest which he may observe in the course of his journeys, must be able to decide on the correct exposure quickly and under all circumstances. To meet this need, Burroughs Wellcome & Co.'s photographic experts have condensed the results of their special study of the question of exposure into a pocket-book known as THE 'WELLCOME' PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, and have combined with their own experience that of travellers in all parts of the globe.

Many methods have been devised for ensuring correct

exposure—some requiring complicated calculations, others the use of elaborate tables or special apparatus. The simplest and most certain method is provided by the ingenious mechanical Calculator contained in each copy of THE 'WELLCOME' EXPOSURE RECORD AND DIARY. Its essential feature is a disc, *one* turn of which tells the correct exposure at a glance.

The simple way

The illustration here shown makes its simplicity clear. The central white portion is the revolving disc which registers with the two fixed scales, shown in tint. Facing the Calculator are tables giving light values, so arranged that the table for each month comes to the front in its proper season. The Calculator is set by turning the disc until the subject to be photographed registers with the figure repre-



sented the light value. That *one* turn is all that is necessary. In addition to thus providing an easy way of calculating correct exposure, THE 'WELLCOME' EXPOSURE RECORD is a pocket note-book and encyclopædia of photographic information. There are three Editions — (1) Southern Hemisphere and Tropics, (2) Northern Hemisphere and Tropics, (3) United States of America. These editions give the information necessary for correct exposure in all parts of the world.



H.R.H. THE DUKE OF  
CONNAUGHT AND  
PARTY

At the grave of  
CECIL RHODES,  
Matoppos, Rhodesia,  
S. Africa

by  
ERNEST BROOKS

From a negative developed  
with  
'TABLOID' 'RYTOL'  
Universal Developer

(see page 399)



## THE RECORDS OF TRAVELLERS

Records of travel and exploration into distant and little known parts of the world constitute a most fascinating department of literature, and one which is especially attractive to British readers. The Empire upon which the sun never sets has been built up by men who have possessed in a remarkable degree the genius of exploration, and a restless and insatiable love of travel runs in the blood of their descendants. Even those Britons who are compelled to stay at home, love to catch an occasional glimpse into some far-off untamed region of the earth's surface, "where foot of man has rarely, if ever, trod," even though it be only in imagination. Books of travel bring before us, vividly, the conditions of life among races widely removed from our own in the line of their development, or lagging behind the stream of human progress like remnants and reminders of primeval man; their pages open up to us a whole world of adventure in which we can track wild beasts in their native haunts, scale lofty mountains and penetrate mysterious caverns and inaccessible deserts.

The charm of  
books of  
travel

Nothing delights the home-keeping lover of travel more than thus to dive into the unknown in the company of an author who has seen and heard what he describes. Such books as "Through Darkest Africa," "Trans-Himalaya," "Farthest South," etc., etc., which palpitate with actuality and bring before us a new vision of the world as it is, are full of interest and of immense educational value.

Workers in this strenuous field of literary effort have found in Photography a most serviceable ally, and the difficulties which at first enveloped the practice of this art on the march or in out-of-the-way places have, to a great extent, disappeared.

Enhanced  
by  
photographs

With a modern camera and a good supply of 'Tabloid' Photographic Chemicals, there is hardly any part of the process which cannot be carried out on the very spot where the negative has been exposed.

The Rev. B. M. McOwen, famous for his vivid and picturesque treatment of Chinese domestic scenes, regularly uses 'Tabloid' 'Rytol' Universal Developer.



A well-known New York journalist, Mr. Frank G. Carpenter, who in 1906 travelled through Northern,



THE KING OF BEKWAI

One of the Ashanti Chiefs of the Gold Coast Colony sitting under the state umbrella and surrounded by his followers.



A CHINESE BARBER AT WORK

Eastern and Southern Africa, commenting on the 'Tabloid' Photographic Outfit which he had taken with him, wrote: "The Photographic material sent was of the highest quality, and I am forwarding a few

of the photographs among the many we took from time to time."



THE SHIPS OF THE DESERT

A String of Saharan Camels

A characteristic Saharan picture of a string of camels from one of Mr. Carpenter's prints is reproduced on *page 396*.

Among those who have carried 'Tabloid' Photographic Chemicals as part of their travelling equipment for an exploring expedition may be mentioned Sir Sven Hedin, the story of whose intrepid journeys in Tibet is related in "Trans-Himalaya" (*see page 435*).

Sir Sven Hedin  
in Tibet

Sir Ernest Shackleton took a complete outfit of 'Tabloid' Photographic Chemicals on his perilous journey into the Antarctic zone (when he got within 97 miles of the South Pole), and pronounced them quite satisfactory.

'Tabloid' Photographic Chemicals were also taken by Capt. Scott on his famous Antarctic voyage in the *Discovery*; and on the *Terra Nova*, in which the same distinguished explorer has again sailed southward in search of the Pole, a very complete outfit of 'Tabloid' Photographic Chemicals has been taken. Mr. H. G. Ponting, the photographer who accompanies Capt. Scott on this latest British Antarctic Expedition, selected as his one developer for all plates, films, bromide prints and lantern slides, 'Tabloid' 'Rytol,' and this developer is also to be used for the very large quantity of cinematograph film which it is intended to develop on the voyage.

Mr. R. L. Jefferson, F.R.G.S., in his book "Through a Continent on Wheels," writes: "I should like to mention that this firm (B. W. & Co.) prepares Photographic Tabloids in a compressed form, and those photographers who desire to develop their plates *en route* cannot do better than adopt their portable and reliable outfits."

Mr. L. N. G. Ward, a traveller whose photographic work is of a high order, uses 'Tabloid' Chemicals. The roll film of a striking picture of his, entitled, "The King of Bekwai," which is reproduced on *page 396*, was developed with 'Tabloid' Pyro-Metol.

'Tabloid'  
Photographic  
Chemicals  
in China

The keeping qualities of 'Tabloid' Photographic Chemicals in hot climates have been amply proved by the experience of voyagers to various parts of the world. One



well-known traveller, Lionel Declé, used them to develop no less than 4000 plates during the course of his wanderings across Africa, and, in recounting his experiences and referring particularly to a package of 'Tabloid' Pyro, he wrote: "This bottle has been to Madagascar through a heavy rain season, to Africa also, and to Algeria. The fact that none of the products are discoloured is for me a conclusive proof that your 'Tabloid' Photographic Chemicals are absolutely perfect."

A writer in the *Pall Mall Gazette* (November 5, 1909), in an article entitled "Chasing the Sun," thus describes the advantages of these products.

"A camerist myself, I have often come across—I had almost written 'always come across'—brethren in the art who took bulky cases of developers, fixers and other chemicals, which took up much room in the kit-bag, and which they sometimes could not replace when they were used up. This is one of the drawbacks to Kodaking in out-of-the-way places. All this inconvenience and worry can be saved, since the time-tested, excellent tabloids sold by Burroughs and Wellcome are sufficient for all needs. In a phial that may be carried in the waistcoat pocket, you have sufficient developer to last during an ordinary tour, and in other phials of similar size, fixers and toners. In a small corner of the bag you can stock away sufficient materials to take you around the world, and you may keep on snapshotting all the way.

"Four phials of the firm's excellent pyro tabloids lasted me through the South African War, and, during a siege, I was well provided with chemicals when other men, not so far-seeing, were without them. The new, handsome, little case for home or touring use, packed with all tabloids necessary for negative and print, is one of the best things ever placed on the market."

The visit of H.R.H. the Duke of Connaught to South Africa, in 1910, was worthily recorded, photographically.

In spite of the difficulties presented by constant movement and changes of climate, Mr. Ernest Brooks, the official photographer on the tour, managed to secure an album of views replete with charming scenes and subjects of historic interest.

On his return he gave some interesting particulars as to the methods employed.

Here is his report :—

H.M.S. BALMORAL CASTLE

Jan. 6, 1911

DEAR SIRS,

While acting as official photographer to H.R.H. the Duke of Connaught during his tour in South Africa, I used 'Tabloid' Photographic Chemicals to the exclusion of anything else.

My whole outfit for the development of plates, films and papers, and for toning prints, was comprised in a metal case measuring  $9 \times 7 \times 6$  inches.

The only developer I used was 'Tabloid' 'Rytol.' It is the best developer I know, and on this tour alone has yielded me over 500 half-plate negatives of first-class quality.

Although my developing was all done *en route*, 'Tabloid' 'Rytol' Developer enabled me to prepare a fresh active solution in a moment, wherever I might be.

It is wonderful what beautifully-graded negatives this developer yields. It gives full details in the shadows, and yet keeps the high lights soft and well modulated even in most difficult subjects. For retaining the full printing value in cloudy skies I know nothing to equal it.

The convenience, portability and keeping qualities of your chemicals are further points in their favour.

Yours faithfully,

Ernest Brooks

These, among other notes and comments from travellers and photographers in various parts of the British Empire and elsewhere, indicate the growing interest felt in modern methods of photography, and serve to emphasise the reliability of 'Tabloid' Photographic Chemicals under conditions which would render ordinary chemicals useless.



THE



‘Tabloid’

AND

‘Soloid’

Invented

by

B. W. & Co.

Are

B. W. & Co.



They *mark* the work of  
Burroughs Wellcome & Co.

They *mean* “Issued by  
Burroughs Wellcome & Co.”

They *stand* for

**24 CARAT** products



FIRELIGHT STUDY

COPYRIGHT

By  
J. WESTON AND SON  
Folkestone

Reproduced from a Bromide print developed with  
'TABLOID' 'RYTOL' UNIVERSAL DEVELOPER  
and stained with 'Soloid' Photographic Stain (Salmon)



COLOUR  
EFFECTS  
BY  
STAINING  
PHOTOGRAPHS



Stained with  
'Soloid' Photographic  
Stain (Blue)



Stained with  
'Soloid' Photographic  
Stain (Red)



Stained with  
'Soloid' Photographic  
Stain (Yellow)



Stained with  
'Soloid' Photographic  
Stain (Green)

*For description  
and directions  
see opposite page*

COLOUR EFFECTS  
BY  
STAINING PHOTOGRAPHS

Many striking and original colour effects may be obtained by immersing lantern slides, bromide, platinotype and similar prints in solutions of suitable dyes. For this purpose, a series of products has been introduced under the title of 'Soloid' Photographic Stains. Portraits, fireside and forge studies may be stained with 'Soloid' Photographic Stain (Red or Salmon), moonlight views and seascapes with a blue 'Soloid' product, street scenes and twilight views with yellow, landscapes with green. The firelight study on the opposite page is a reproduction of a print stained with 'Soloid' Photographic Stain (Salmon). The method of staining is quite simple: Dissolve one 'Soloid' Photographic product in four ounces of water, and having soaked the prints (which should not previously have been hardened) in water until flaccid, immerse them in the staining solution for a few minutes, then rinse and dry in the usual way. The most pleasing effects are produced in the majority of cases by employing solutions of this strength, thus obtaining a suggestion of colour rather than a pronounced tint. For lantern slides where a deeper colour is required, one 'Soloid' Photographic Stain product may be used with *one* ounce of water.





#### A FIELD OF BELLADONNA (*Atropa belladonna*)

*Atropa belladonna* is grown from genuine wild seed. The best crops of leaves are obtained in the second, third or fourth year of the plant's growth, and it is at this period that the alkaloidal content is greatest.



#### LOADING BELLADONNA

The yield ranges from 1-1/2 to 5 tons per acre. The freshly-cut herb is weighed in bundles and carried straight to the laboratories in a motor trolley. A portion of the leaves is dried in a few hours in specially-ventilated chambers. The roots, which are collected in the autumn, are sliced in order to accelerate the drying, and so prevent any undesirable change taking place.



## THE 'WELLCOME' MATERIA MEDICA FARM

THE vital importance of standardisation of drugs has always been recognised by Burroughs Wellcome & Co. Constant attention has been devoted to the subject, and the principle has been applied not merely to the chemical, but also to the vegetable and animal substances required for the preparation of the firm's products. The old method of picking samples of drugs by their colour and appearance has long been felt to be inadequate, and it has become necessary to view them in the more penetrating light of chemical analysis and of physiological tests.

Standardisation

Even the most experienced pharmacognosist may select drugs which, on the basis of form, colour and other physical characteristics, appear to possess a high standard of quality, yet on assay do not yield the requisite percentage of active principles.

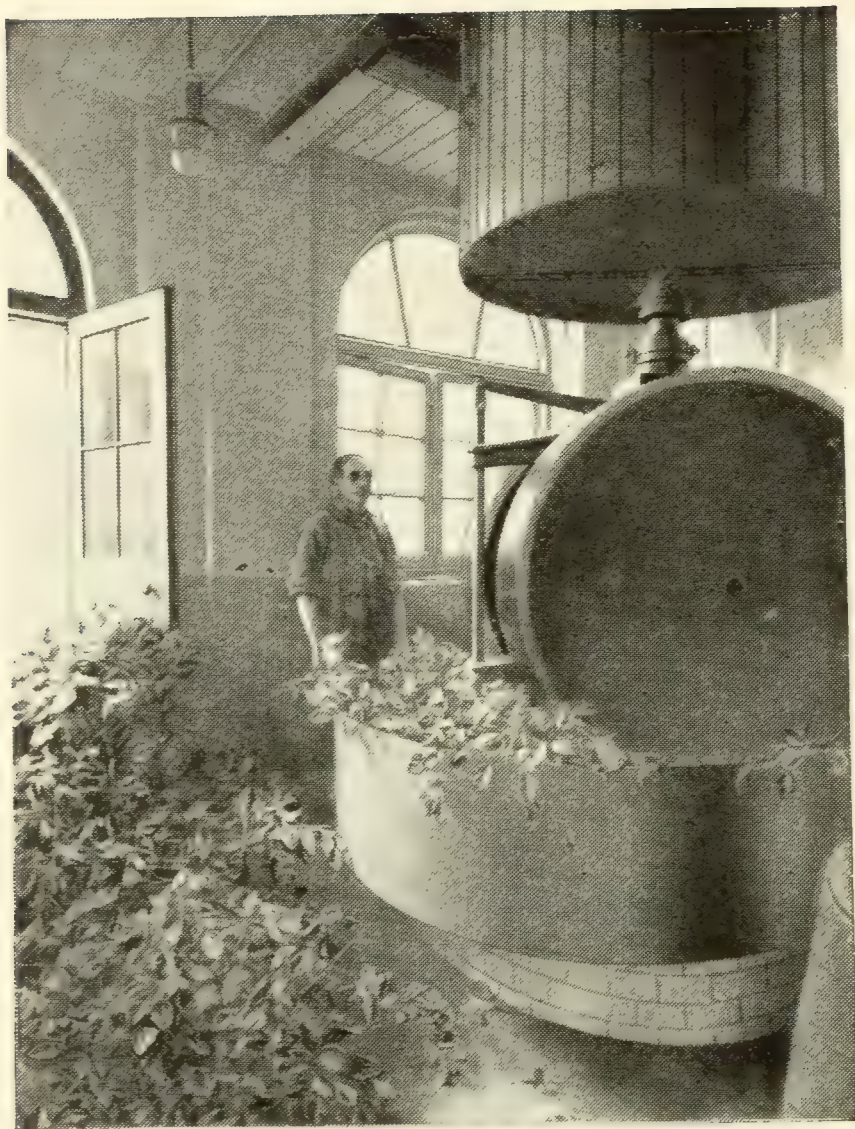
In this connection, a paper by Carr and Reynolds, published in the *Chemist and Druggist*, shows in tabular form the very considerable range of variation in the proportion of active principles existing in samples of drugs bought on the market. Amongst the examples given are the following :—

Drug	Lowest per-centage	Highest per-centage	Active Principle determined
Belladonna (dried herb)	0·23	1·08	Total alkaloids
Broom tops	0·07	1·06	Sparteine Sulphate
Cinchona Succirubra	1·06	4·64	Quinine and Cinchonidine
Hydrastis Root	2·3	5·8	Berberine Sulphate
Ipecacuanha Root (Rio)	0·18	1·83	Emetine

It is evident that the accuracy and care exercised by the pharmacist in weighing and measuring drugs for use in medicine are nullified if the active principles are variable to such an extent. The obvious remedy for this state of matters, is standardisation.

Closely bound up with the question of standardisation is that of the possibility of exercising scientific control over





## FRESH BELLADONNA LEAVES

About to be expressed for juice and for making the green extract. It is extremely important that this be done promptly to avoid fermentation and consequent deterioration of the product. The fresh herb is gathered as soon as the sun is up, and expressed and treated before sunset.

‘WELLCOME’  
CHEMICAL  
WORKS

## HEMLOCK (*Conium maculatum*)

A typical bush of Hemlock (*Conium maculatum*). The fresh leaves and branches are collected when the fruit begins to form.

‘WELLCOME’  
MATERIA  
MEDICA FARM







#### GATHERING HYOSCYAMUS (*Hyoscyamus niger*)

*Hyoscyamus niger*, one of the most difficult plants with which the herb farmer has to deal, is grown from seed sown about March or April. The young plants show above ground at the end of May or beginning of June. In the autumn they are separated if too close together. In the following May an aerial stem is developed, which rapidly grows until it reaches the height of three or four feet. The flowering takes place in June or July, when the crop is harvested.



#### DIGITALIS (*Digitalis purpurea*) IN FLOWER

*Digitalis purpurea* is obtained from carefully-selected wild seed, and any variations from the wild type are struck out. Great care is taken in collecting and drying the leaves, otherwise the medicinal activity would be adversely affected. Blighted, faded or defective leaves are rejected, and only the finest preserved for use.





#### ACONITE (*Aconitum napellus*) IN FLOWER

*Aconitum napellus*, when raised from seed, takes two or three years to flower; it is best propagated by dividing the roots; each root is biennial, but, as it has the power of forming new ones every year, the plant itself is perennial.



#### A FIELD OF DATURA METEL

This handsome plant is interesting, as recent investigation has shown that it contains Hyoscine, Hyoscyamine and Atropine in proportions differing from those occurring in other solanaceous plants.



the cultivation of medicinal herbs, more especially those which are found to present great variations in activity when obtained in the wild state. Hence, with the introduction of the 'Wellcome' Brand standardised galencials, Burroughs Wellcome & Co. found it necessary, in order to obtain a constant supply of herbs of a sufficiently high standard of quality, to grow them under their own immediate supervision. The benefits of conducting a materia medica farm in conjunction with the preparation of pharmaceutical products are many. For instance:—

Expert  
supervision  
of growth

(1) A drug may be treated or worked up immediately it has been collected.

(2) Herbs may be dried, if necessary, directly they are cut, before fermentation and other deteriorative changes have set in.

(3) Freedom from caprice on the part of collectors who, in gathering wild herbs, are very difficult to control in the matter of adulteration, both accidental and intentional.

(4) The ability to select and cultivate that particular strain of a plant which has been found by chemical and physiological tests to be the most active, and which gives the most satisfactory preparations. Notable instances of these are to be found in connection with *Digitalis* and *Belladonna*.

Fortunately, suitable land was available near the 'Wellcome' Chemical works at Dartford, and there the 'Wellcome' Materia Medica Farm has been established. The following extracts from a descriptive article which appeared in the *Chemist and Druggist* of January 29, 1910, will give some idea of the nature and scope of this enterprise:—

'Wellcome'  
Materia  
Medica  
Farm

"A suitable piece of land for 'a physicke garden' (had been chosen) on an undulating slope, with here and there a clump of trees and a strip of wild woodland, between the river and the North Downs, hard by the little village of Darenth. No more ideal spot for a herb farm could have been chosen. It has shade, sunshine and moisture, and a fine loamy soil, varied by sandier uplands. Here the firm have for the last six years been cultivating medicinal

Research  
and  
experiment





GOLDEN SEAL (*Hydrastis canadensis*)  
 An experimental crop of Hydrastis, grown under natural conditions, in a grove shaded by hedges and trees.



GOLDEN SEAL (*Hydrastis canadensis*)  
 The same plant under a specially-designed lattice structure, which ensures the requisite amount of shade.



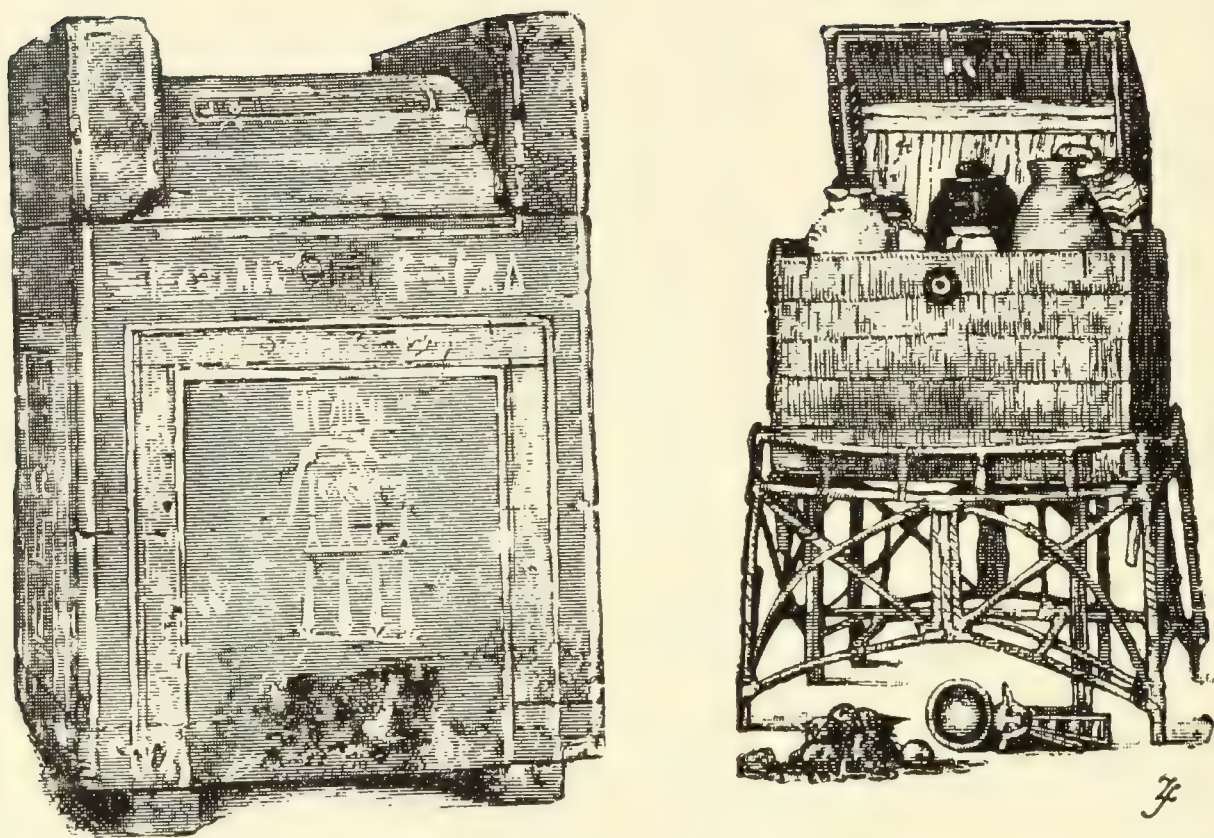
plants under the immediate superintendence of pharmaceutical and botanical experts. The farm was established, firstly, to provide opportunities and materials for research and experiment, and, secondly, to supply the manufacturing departments with medicinal herbs of proper quality.

"A visit to the farm shows that the greater part is devoted to the cultivation of staples; but a number of plots are used for experimental crops. Among such are meadow saffron (*Colchicum autumnale*), with its pale-purple flower. Lavender, peppermint, and French roses grow side by side. Senega and the unpretentious taraxacum, with its bright yellow petals, occupy other spaces. Ginseng, the root that plays so important a part in Chinese medicine, is also grown. *Podophyllum peltatum*, *Scopolia atropoides*, *Datura meteloides*, sea poppy (*Glaucum luteum*), and *Grindelia robusta*, are other plants that one does not usually find growing on a scale greater than the experimental; but the plots of *Hydrastis canadensis* are botanically and commercially the most interesting on the farm, in view of the fact that we are coming within measurable distance of the end of the natural supply from North America.

"It is grown at the 'Wellcome' Materia Medica Farm in the open under perfectly natural conditions, in a little woodland dell shaded by tall elms and bramble bushes; and, in another part of the farm, under a lattice-work structure, an effort to re-create the conditions of the native home of golden seal, which is in rich, moist woods from Canada to Carolina. The growth under the latter conditions is more generous. In this case the plants are protected from the noonday heat.

"The purpose which Burroughs Wellcome & Co. had immediately in view when they established this farm, *i.e.* supplying the products of the field direct to their Works, has been fulfilled, and the farm has in that respect passed the experimental stage, and reached one of great practical utility. On the research side, experiment goes on, especially in regard to selection and cultivation of strains which have been found by chemical and physiological tests to be the most active."





THE MEDICINE CHEST OF  
QUEEN MENTU-HOTEP, WHO LIVED 2200 B.C.

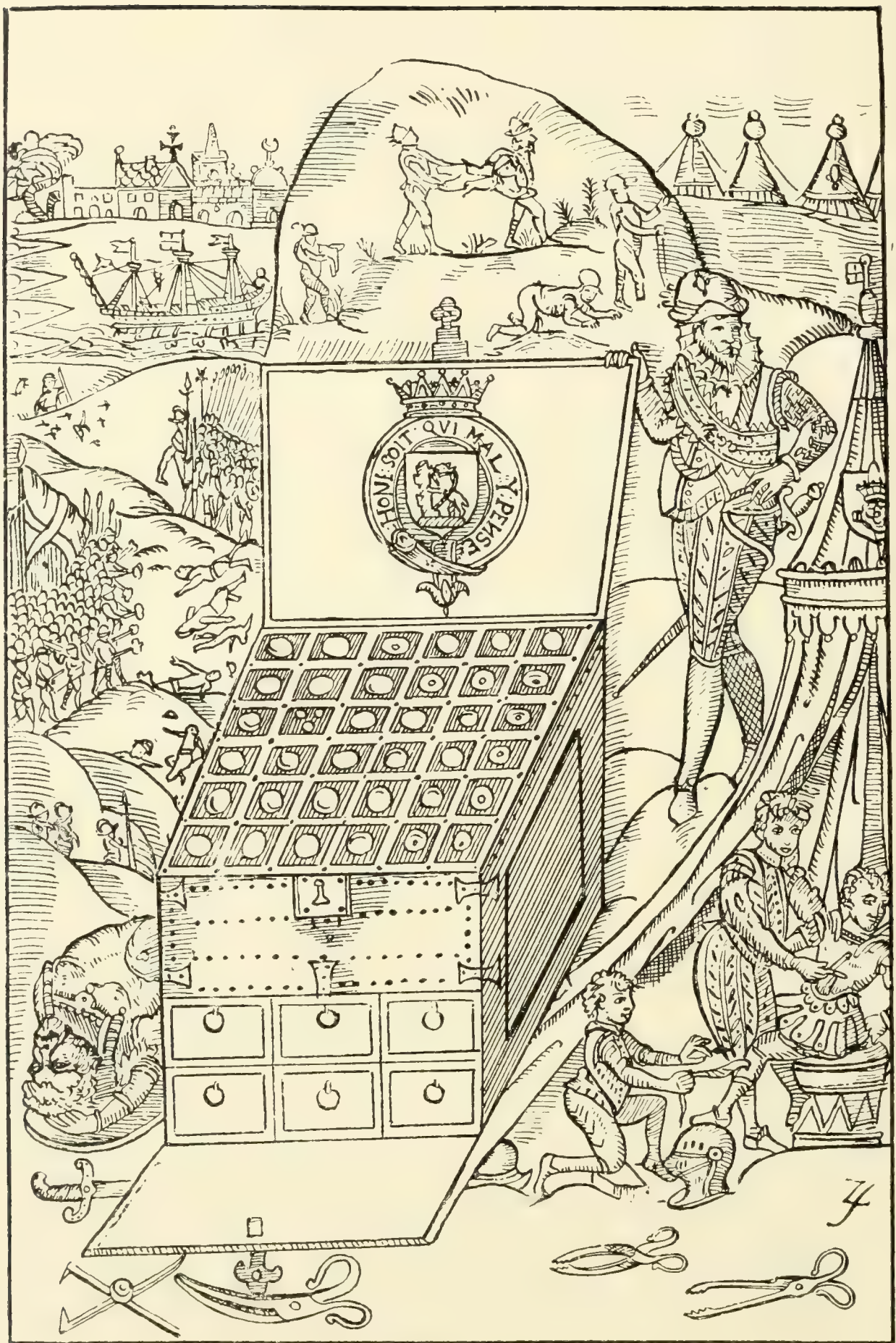
The massive outer case for the chest is shown on the left. It is composed of wood, decorated with hieroglyphics, amongst which are the royal cartouche and the figure of a crouching jackal.

The chest itself is depicted on the right. It is composed of plaited papyrus reeds, and is supported on a stand. The chest is divided into six compartments, each containing a beautifully-shaped medicine jar of oriental alabaster. Various medicinal roots, and a wooden spoon, the handle of which is ornamented with the head of Hathor, were discovered in the chest.

This unique Egyptian medical equipment was discovered at Thebes, and demonstrates the huge bulk and cumbersome fittings, combined with paucity of supplies which have been characteristic of medical outfits from the days of the Pharaohs until the introduction of 'Tabloid' products. The modern medical man armed with a 'Tabloid' brand Pocket-Case carries a scientific therapeutic equipment, the equivalent of which in the drugs of antient Egypt could be transported only by a regiment of slaves.

HISTORICAL  
MEDICAL EQUIPMENTS  
USED IN  
MILITARY, GEOGRAPHICAL  
AND  
JOURNALISTIC EXPEDITIONS





MILITARY MEDICINE CHEST—1588

Fabricius, a noted Swiss physician of the XVI century, recommended that the military chest should be furnished with no less than 362 varieties of medicine, some of which contained as many as 64 ingredients. The complexity of arrangement, the huge bulk and great weight, the liability to breakage, and the complicated inconvenience of medicine chests persisted until the introduction of 'Tabloid' Medical Equipments.



### THE SMALLEST MEDICINE CHEST IN THE WORLD

This tiny gold medicine chest is fitted with twelve square medicine chest bottles containing 300 doses of 'Tabloid' Brand Medicaments, equivalent to 15 pints of fluid medicine.



AT THE NORTH POLE  
 'Tabloid' Equipments were carried by  
 Commander PEARY



'Tabloid' Medical Equipments were  
 carried by Sir Ernest H. SHACKLETON  
 FARTHEST SOUTH

'TABLOID' MEDICAL AND FIRST-AID EQUIPMENTS  
 Have reached the North Pole, and as near to the South Pole as  
 man has gone

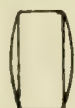
# HISTORICAL MEDICAL EQUIPMENTS

## FOR MILITARY, GEOGRAPHICAL AND JOURNALISTIC EXPEDITIONS

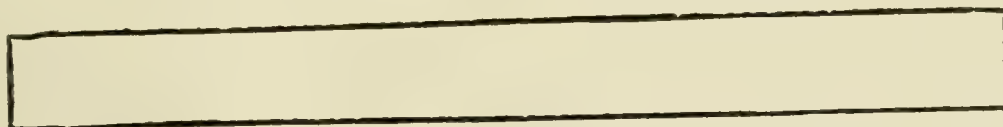
THE Medical Equipments of the present day differ notably from those of olden times in two distinct directions—diminished bulk, and in purity and efficacy of content. This improvement has only been effected in the last quarter century and mainly by B. W. & Co.; before that time, campaigning medicine chests had to be either of enormous and unwieldy size, or, if small, they could contain only the most meagre supplies.

In the Middle Ages, owing to the great variety and bulky nature of the remedial agents used, the medicine chests employed in military campaigns assumed enormous proportions, and it was not until the middle of the nineteenth century that progress was made towards reducing the bulk of medical outfits for campaigning purposes.

Bulky yet  
inadequate  
equipments



Size of one product of 'Tabloid'  
Cinchona Tincture, min. 30



Length of 30 min. tube of Liquid Tincture, same  
diameter as 'Tabloid' product .

Early explorers, particularly in Africa, found the difficulties of procuring suitable portable medical supplies practically insuperable, and the horrors of disease and death associated with their expeditions were almost beyond description.

“When I think [said the late Sir H. M. STANLEY, in the course of one of his lectures] of the dreadful mortality of Capt. TUCKEY's Expedition in 1816, of the NIGER Expedition in 1841, of the sufferings of BURTON and SPEKE, and of my own first two expeditions, I am amazed to find that much of the mortality and sickness was due to the crude way in which medicines were supplied to travellers. The very recollection causes me to shudder.”

A famous  
journalist  
on early  
expeditions

Mortality  
due to crude  
medicines





'TABLOID' MEDICAL EQUIPMENTS  
IN CENTRAL AFRICA

That a very marked change has taken place can be gathered from a more recent speech of this eminent explorer and journalist, in which he said :—

In my early expeditions into Africa, there was one secret wish which endured with me always, and that was to ameliorate the miseries of African explorers. How it was to be done I knew not, who was to do it, I did not know. But I made the acquaintance of Messrs. BURROUGHS WELLCOME & Co. As soon as I came in sight of their preparations and their works, I found the consummation of my secret wish. On my later expeditions I had all the medicines that were required for my black men, as well as my white men, beautifully prepared, and in most elegant fashion arranged in the smallest medicine chest it was ever my lot to carry into Africa.

B. W. & Co.  
solved the  
problem



One of the "TABLOID" BRAND MEDICINE CHESTS carried by the late Sir H. M. STANLEY through "Darkest Africa," and brought back, after three years' journey, with the remaining contents unimpaired.

In his books, *Founding the Congo Free State* and *In Darkest Africa*, the late Sir H. M. STANLEY wrote in the very highest terms of 'Tabloid' Medical Equipments.

Amongst other cases used during STANLEY's travels is the famous "Rear-Guard" 'Tabloid' Medicine Chest, which remained in the swampy forest regions of the Aruwimi for nearly four years, and more than once was actually submerged in the river. When it was brought back to London, the remaining contents were tested by the official analyst of *The Lancet* who reported that the 'Tabloid' medicaments had perfectly preserved their efficacy.

Tested by  
"The Lancet"





'TABLOID' MEDICAL EQUIPMENTS  
IN MOROCCO

The late Surgeon-Major PARKE, Stanley's Medical Officer, in his *Guide to Health in Africa*, writes :—

The medical preparations which I have throughout recommended are those of BURROUGHS WELLCOME & Co., as I have found, after a varied experience of the different forms in which drugs are prepared for foreign use, that there are none which can compare with them ['Tabloid' products] for convenience of portability in transit, and for unfailing reliability in strength of doses after prolonged exposure.

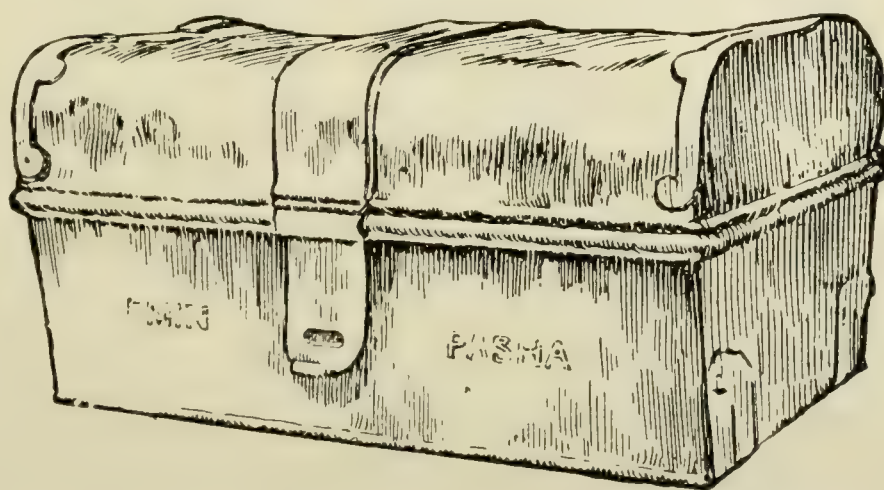
Unfailing  
reliability,  
portability and  
convenience ;

At this point it is of interest to turn to the 'Tabloid' Medicine Chest, here illustrated, which was discovered near Kenia, in the Aruwhimi Dwarf Country. It was the last chest supplied to EMIN PASHA, GORDON's Governor of the Equatorial Sudan. This chest was taken by Arabs when EMIN PASHA was massacred in 1892, and was recaptured by BARON DHANIS, Commandant of the Congo Free State troops, after the battle of Kasongo. It was subsequently stolen by natives, and finally recovered by an officer of the Congo Free State, and returned to BURROUGHS WELLCOME & Co.

Emin Pasha

The following is a copy of EMIN PASHA's letter written to BURROUGHS WELLCOME & Co. on receiving the chest :—

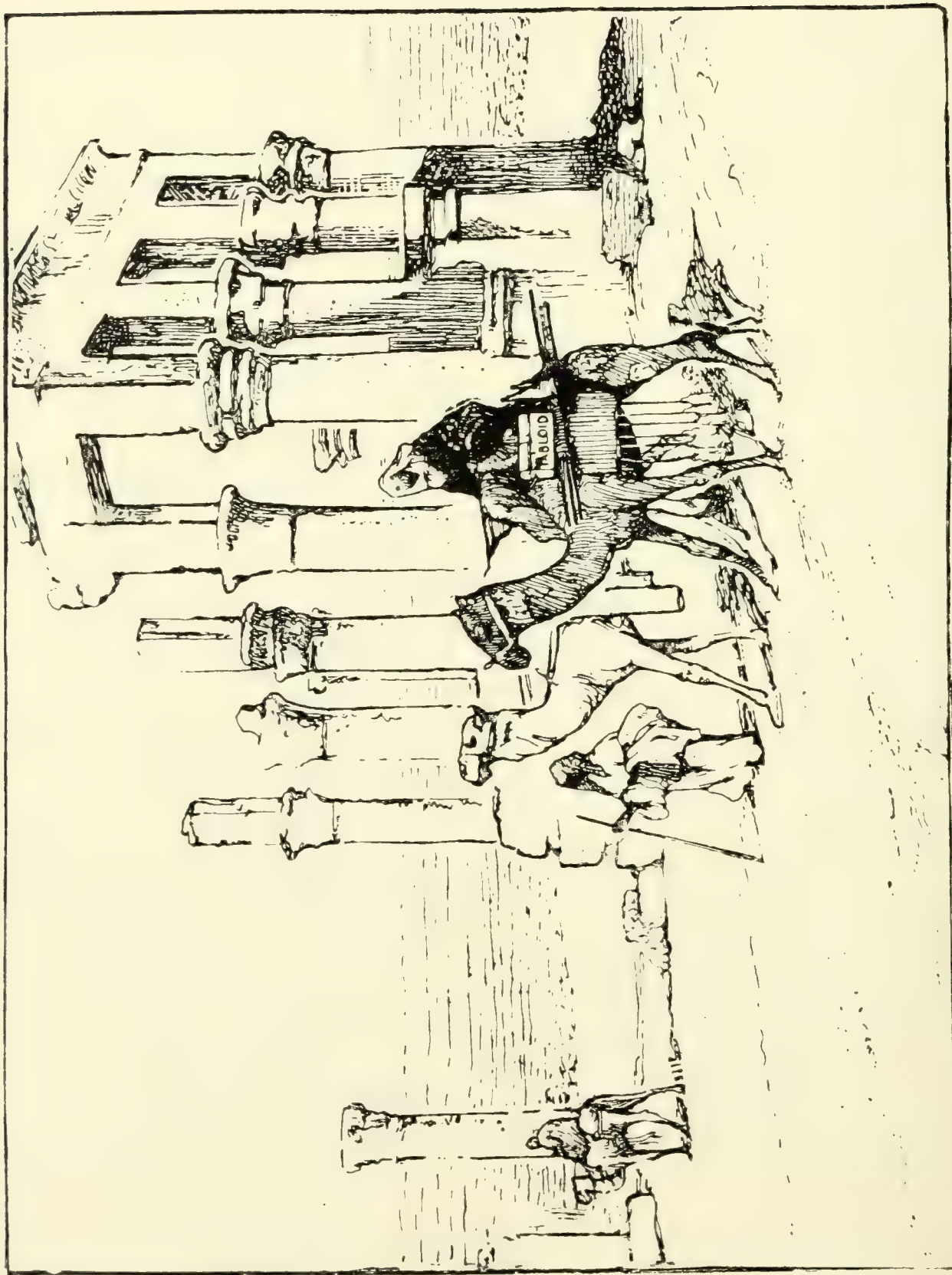
Gentlemen,—I found the medicine chest you forwarded me fully stocked. I need not tell you that its very completeness made bound my heart. Articles like those could not be made but at



EMIN PASHA'S 'TABLOID' BRAND MEDICINE CHEST

the hand of the greatest artists in their own department. If any one relieved from intense pain pours out his blessings, they will come home to you.





'TABLOID' MEDICAL EQUIPMENTS  
IN EGYPT

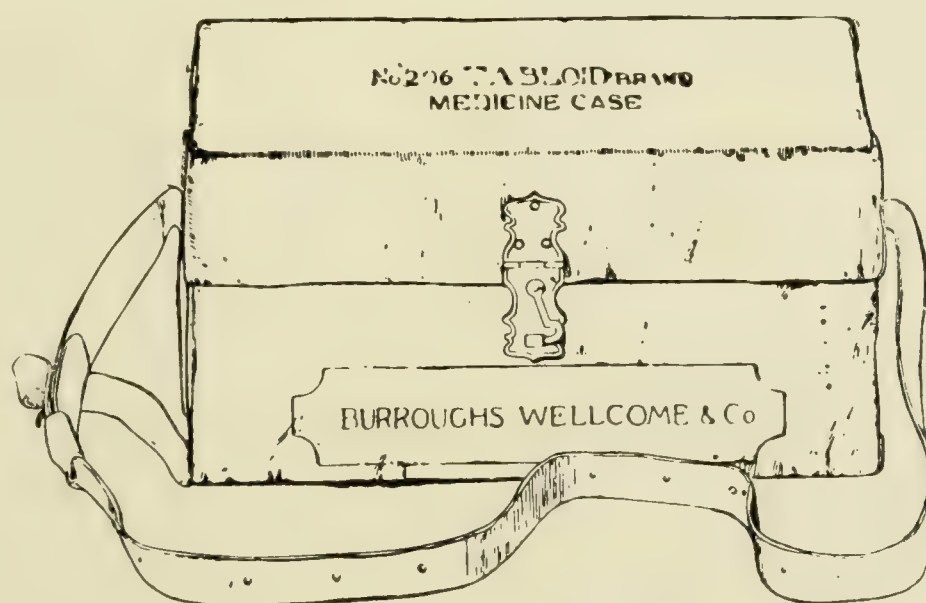
I should like to expatiate somewhat longer on the intrinsic value, but sickness preventing me to do so. I wish you to believe me,

*Yours very faithfully*

*Dr Emin Pasha*

Another case associated with Stanley is the raw-hide 'Tabloid' Medicine Case used by Thomas Stevens, the well-known journalist who travelled round the globe on a bicycle, and was the hero of other pioneer exploits in different parts of the world. Stevens was the first to greet the great explorer on his return to civilisation, and during his twelve months' journeyings in Masailand and German East Africa, was greatly impressed with the portability

Thos. Stevens'  
'Tabloid'  
Medicine Case

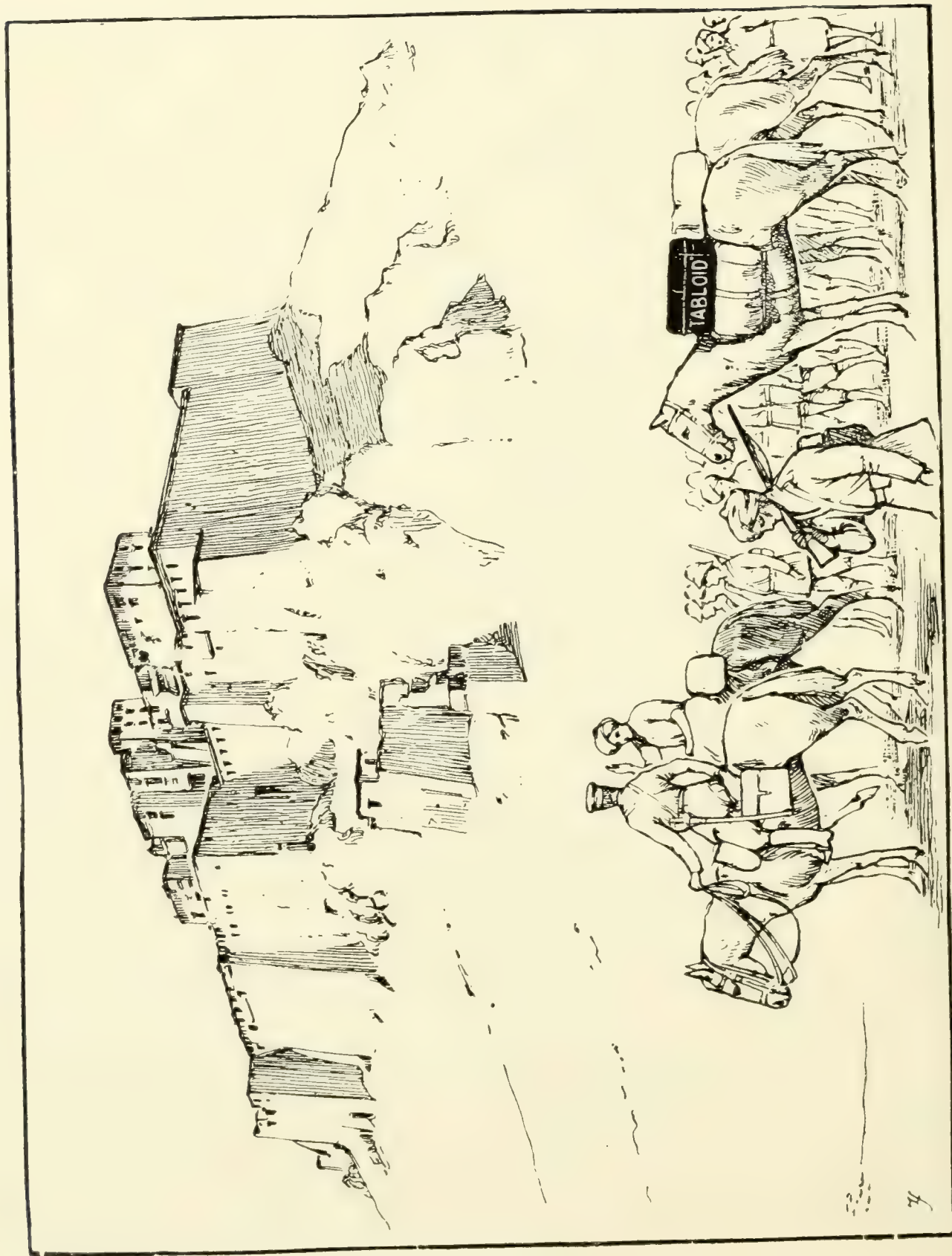


THOMAS STEVENS' 'TABLOID' BRAND MEDICINE CASE

and compactness of his medical outfit, and with the efficacy of its contents. In his book, *Scouting for Stanley in East Africa*, he wrote: "Stanley, in recommending these Medicines ['Tabloid' products], has earned the gratitude of every man who goes to a tropical country."

A history of all the 'Tabloid' equipments associated with African exploration would, of itself, make a large volume, and it is only possible to make brief mention of a few other instances of their use.





'TABLOID' MEDICAL EQUIPMENTS IN TIBET

That 'TABLOID' EQUIPMENTS excel for military purposes has been abundantly demonstrated during various British and foreign military campaigns. The following is an extract from the **Official Government Report** made by the Chief Medical Officer of the last BRITISH MILITARY EXPEDITION to ASHANTI, on the 'Tabloid' Brand Medical Equipment supplied by BURROUGHS WELLCOME & Co.:—

Military  
expeditions

The supply of medicines, both as to quality and quantity, left nothing to be desired. There was no scarcity of anything. The 'Tabloid' medicines were found to be most convenient and of excellent quality. To be able to take out at once the required dose of any medicine, without having to weigh or measure it, is a convenience that cannot be expressed in words. Time is saved to an extent that can hardly be realised, and so is space, for a fitted dispensary, or even a dispensary table, is unnecessary. The quality of medicines was so good that no other should be taken into the field. The cases supplied are almost ideal ones for the Government. They are light, yet strong, and the arrangement of the materials and medicines is as nearly perfect as possible.

No delay to  
weigh or  
measure

Quality so good,  
no other should  
be taken into  
the field

It is instructive to compare the experience of this Expedition with that of the WOLSELEY ASHANTI EXPEDITION of 1873, fitted out according to old-time methods.

The suffering and loss of life were then terrible, for want of suitable medical equipments.

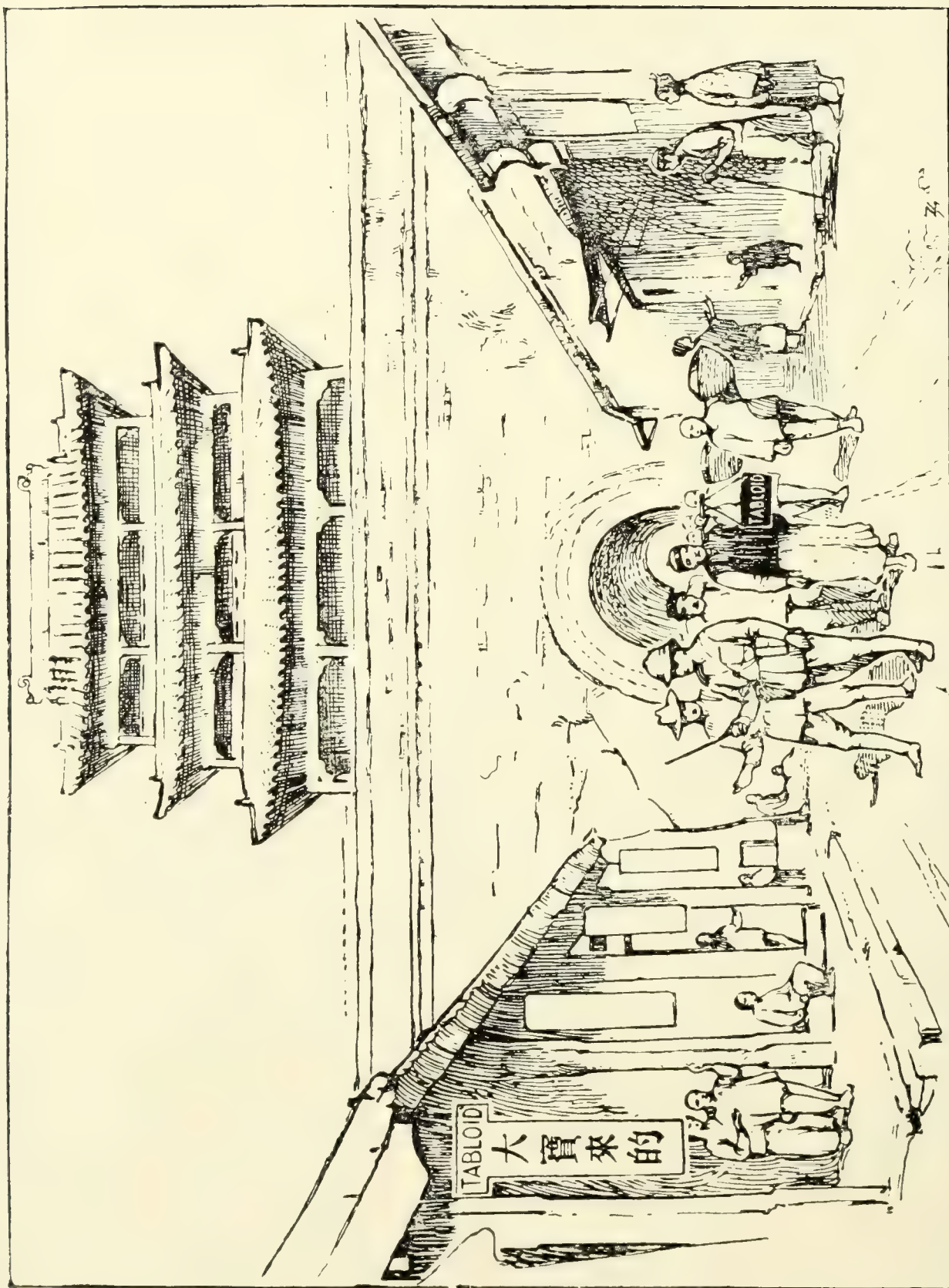
Without exception, 'Tabloid' Medical Equipments have been used in all the campaigns of the last twenty-five years, and have played an important part in combating the diseases which seem inseparable from an army in the field.

During the war with Spain, in Cuba and the Philippines, 'Tabloid' Medical Equipments were specially ordered for, and used by, the U.S. Army and Navy.

The Military Expedition which, under the command of LORD KITCHENER, defeated the Khalifa and reconquered the Sudan, was supplied with 'Tabloid' Brand Medical Equipments.

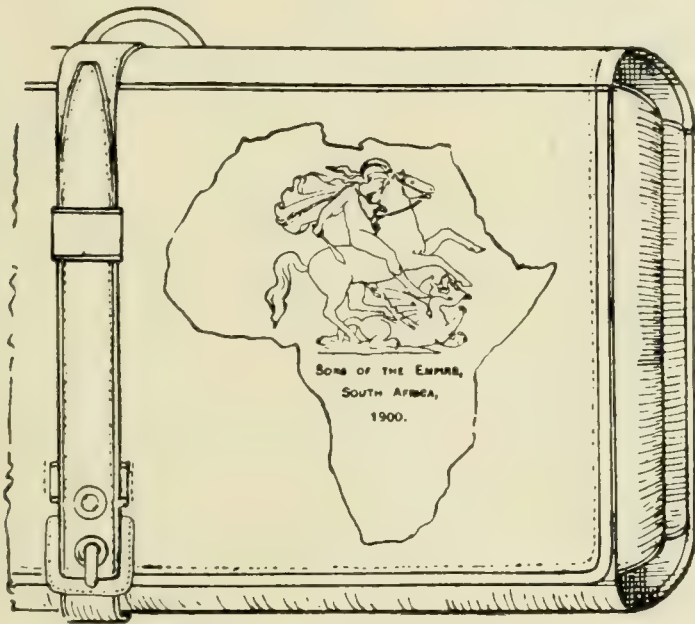
An illustration of one of the 'Tabloid' Medical Equipments specially designed for, and supplied to, the British





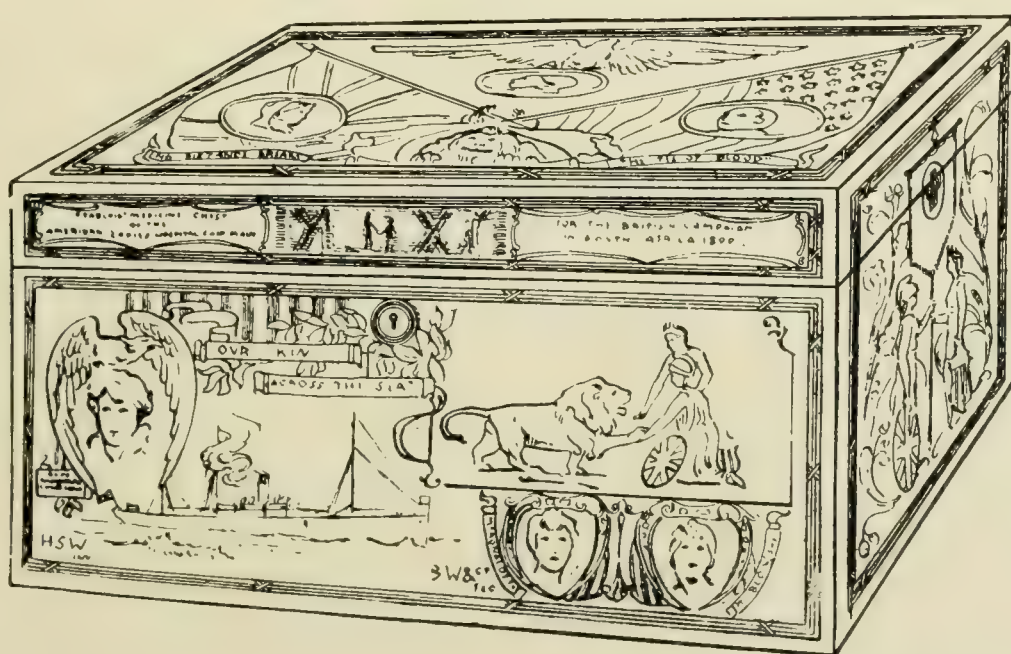
'TABLOID' MEDICAL EQUIPMENTS IN CHINA

Colonial Forces for use in the recent South African Campaign is here shown. Similar cases were designed for, and supplied to, the CITY OF LONDON IMPERIAL VOLUNTEERS and IMPERIAL YEOMANRY.



One of the 'TABLOID' BRAND MEDICINE CASES specially designed for, and supplied to, the troops from the various British Colonies, for use in the South African Campaign.

The equipment of the American Hospital Ship *Maine*, and the valuable services it rendered in connection with the campaigns in South Africa and in China, are so recent as to be within the memory of all. The whole of the medical outfit was supplied by BURROUGHS WELLCOME & Co.



One of the 'TABLOID' BRAND MEDICINE CHESTS specially designed for, and supplied to, the Hospital Ship *Maine*.



Referring to this equipment, the *Lancet* (London, Eng.) reported:—

The whole of the medical outfit has been supplied by Messrs. Burroughs Wellcome & Co. One of the medicine chests supplied by this firm is in tooled leather, designed by Mr. Henry S. Wellcome.

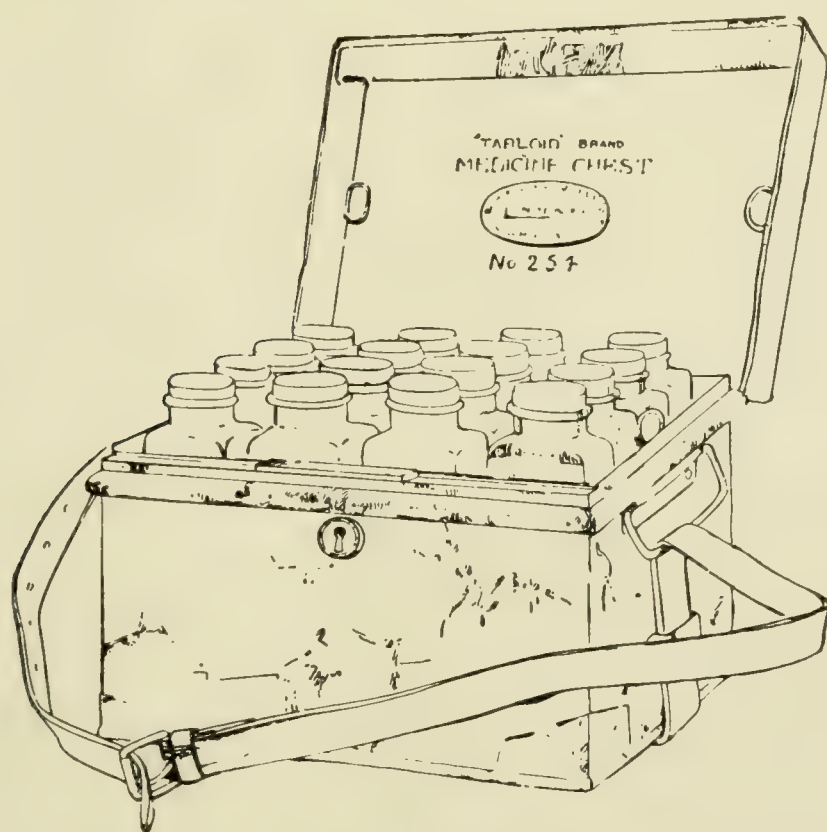
The following description of this chest may be of interest:—

The chest is made of oak covered with Carthaginian cow-hide, tooled by hand, with chaste designs successfully representing in allegory the alliance of Great Britain and America in the succour of the wounded. On the top panel appear the Union Jack and the Stars and Stripes entwined, portraits of Queen Victoria, George Washington and President McKinley; also representations of the British Lion and American Eagle. The front panel bears portraits of Lady Randolph Churchill (Mrs. George Cornwallis-West), the hon. secretary and the hon. treasurer of the fund; a picture of the ship itself; a scene representing the British Lion, wounded by an arrow which lies at his side, being ministered to by Britannia and Columbia. A frieze is formed by a representation of an American Indian wampum, upon which Brother Jonathan and John Bull are depicted hand in hand. The panel at each end of the chest represents Britannia and Columbia supporting a banner bearing the Red Cross, and on the panel at the back the British Regular and Colonial Lancers are shown charging a Boer force. Keble's line, "No distance breaks the tie of blood," and Bayard's phrase, "Our kin across the sea," are inscribed on the chest. This beautiful cabinet contains a number of smaller cases fitted with 'Tabloid' and 'Soloid' products and 'Tabloid' Hypodermic Outfits, and is in itself a compact and complete dispensary.

In addition to their adoption by military and naval authorities, 'Tabloid' Medical Equipments have been used by the War Correspondents who have accompanied all modern expeditions.

The conclusive proofs afforded by all these campaigns and expeditions of the incomparable utility of the B. W. & Co. equipments, under circumstances of the most trying nature, naturally led to their still more extensive employment in South Africa during the late war. The trying conditions of transport and the climatic influences were just such as 'Tabloid' Equipments and 'Tabloid' Equipments only, had been proved, by earlier experience, to be capable of resisting. Constant references were made to the adequacy and efficiency of the equipments supplied.

### A WAR CORRESPONDENT'S EQUIPMENT



The late G. W. STEEVENS' 'TABLOID' Brand MEDICINE CHEST

An equipment of the greatest personal interest is the chest here illustrated. It was formerly the property of the late G. W. Steevens, and used by him throughout the war in Greece, the two Sudan campaigns, and his journey in India. In the South African War the same chest did good service until this brilliant writer's life was brought to a premature end during the siege of Ladysmith.

G. W. Steevens





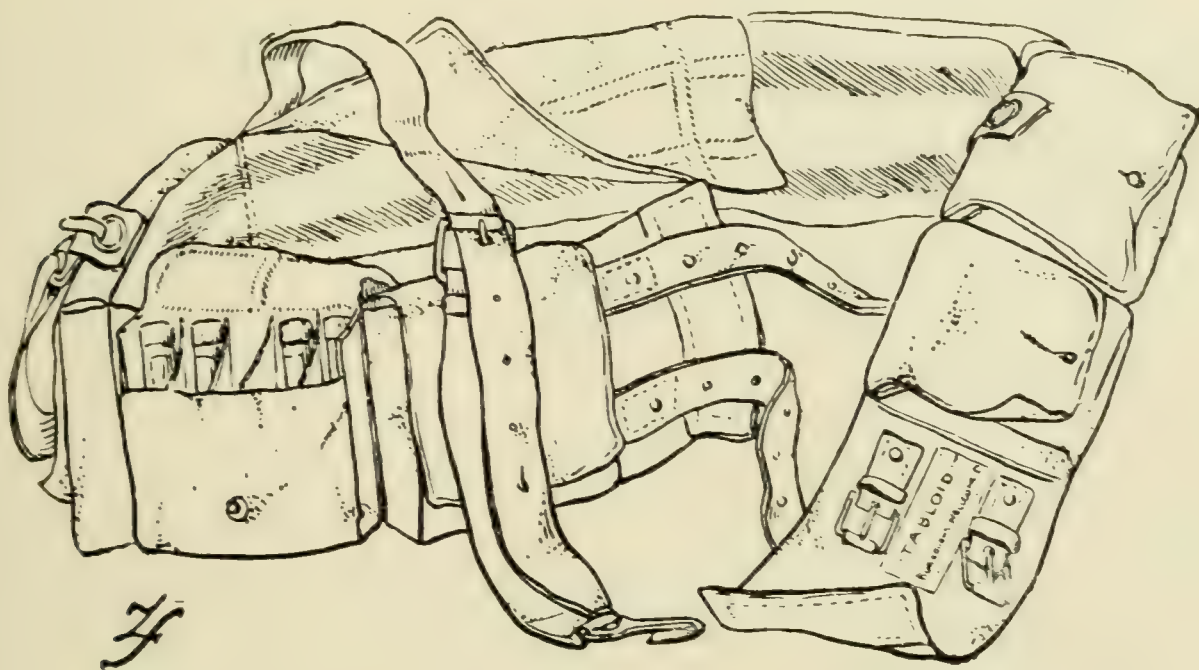
'TABLOID' MEDICAL EQUIPMENTS  
IN ARCTIC AND ANTARCTIC EXPLORATION

## IN ARCTIC AND ANTARCTIC EXPLORATION

In the successive heroic endeavours to reach the Poles, during recent years, and in the exploration of Arctic and Antarctic lands, 'Tabloid' Medicine Chests have taken a pioneer position, and continue to hold supremacy.

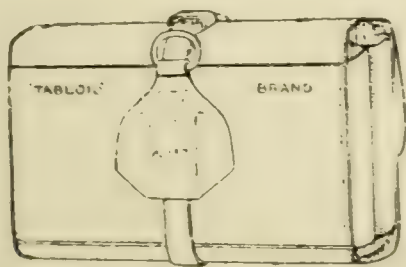
The 'Tabloid' Belts and other Medical Equipments supplied to NANSEN for his journey in the *Fram*, and those used by the JACKSON-HARMSWORTH ARCTIC EXPEDITION, have been added to the historic collection of BURROUGHS WELLCOME & Co.

A famous  
journalistic  
enterprise



One of the 'TABLOID' BRAND MEDICINE BELTS carried by NANSEN on his Arctic Expedition.

The ITALIAN ARCTIC EXPEDITION, commanded by the DUKE OF THE ABRUZZI, found that, despite the fact that the northern latitude of  $86^{\circ} 33' 49''$  was reached, the



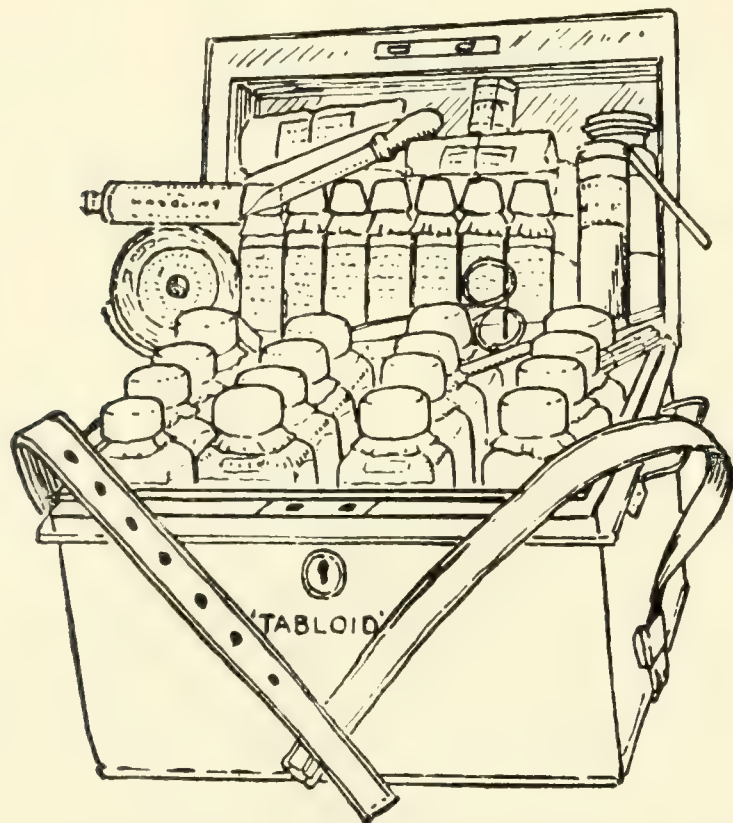
One of the 'TABLOID' BRAND MEDICINE CASES, carried by the DUKE OF THE ABRUZZI's Polar Expedition.

'Tabloid' Medicine Chests and Cases with which the Expedition was equipped were brought back with their remaining contents quite unaffected by the rigour of the climate.



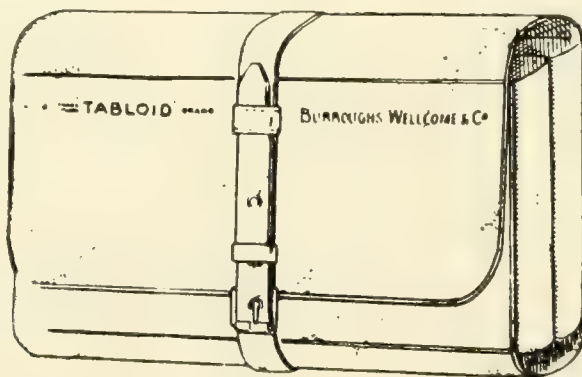
COMMANDER PEARY, to whose record stands the achievement of reaching the farthest northern latitude, writing from Etah, Greenland, reported:—

Burroughs Wellcome & Co. 'Tabloid' Medicine Cases and supplies have proven invaluable.



One of the 'TABLOID' BRAND MEDICINE CHESTS used by COMMANDER R. E. PEARY.

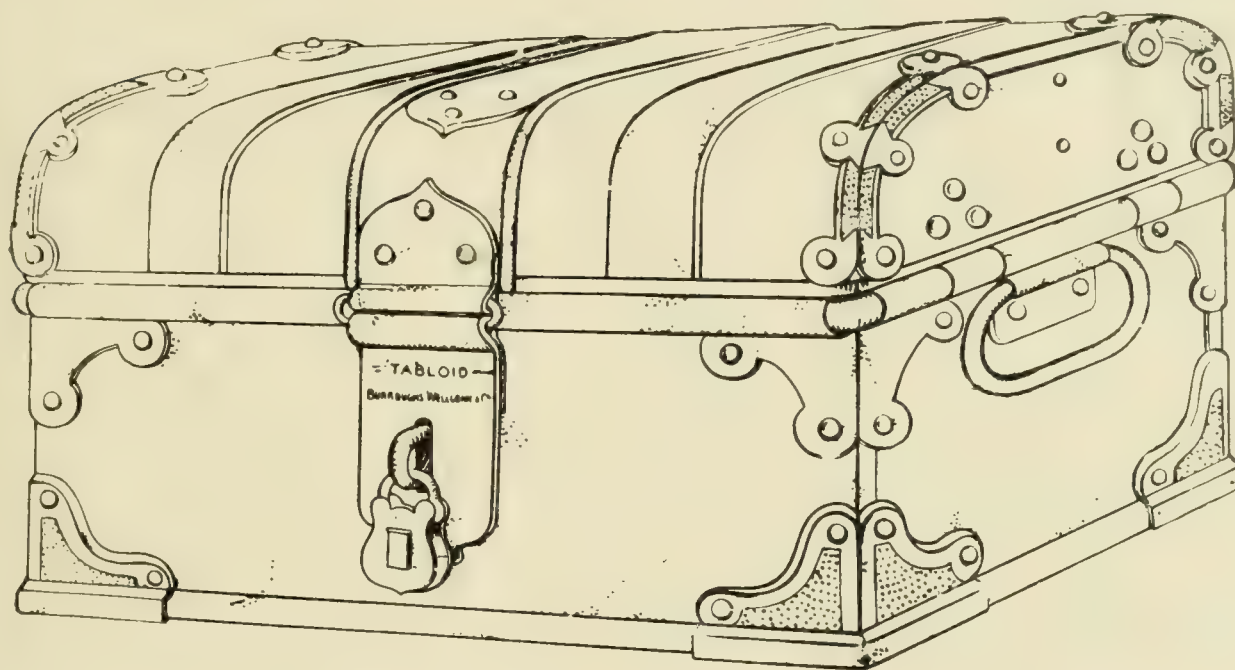
The entire medical outfit of the National Antarctic Expedition was furnished by Burroughs Wellcome & Co., and on the return of the *Discovery*, with the members of the Expedition on board, the medical officer made a highly satisfactory report on the 'Tabloid' Medical Equipment.



One of the 'TABLOID' BRAND MEDICINE CASES carried by the National Antarctic Expedition.

In August, 1901, the *Discovery* left England, and, in the following January, crossed the limit of the Antarctic Circle.

Having passed the farthest eastward point attained by Ross sixty years before, the explorers discovered a new land, which they named King Edward VII. Land. One of the most noteworthy features of the Expedition was the



No. 251. One of the 'Tabloid' Brand Medicine Chests carried by the National Antarctic Expedition.

arduous sledge journey undertaken by the commander, Captain SCOTT, accompanied by Lieutenant SHACKLETON and Dr. WILSON. This journey over the ice occupied three months, and the latitude of  $82^{\circ} 17'$  South was reached.

On sledge journeys the question of weight is of great moment. The traveller on such occasions must carry but the barest necessities, and of these the lightest procurable. The medicine chest is an important item, for upon the efficacy of its contents the lives of the explorers may depend. Every drug carried must be of the utmost reliability, in the most compact state, and capable of withstanding an extremely low temperature.

Reliability  
essential

That 'Tabloid' Medical Equipments fulfil all requirements has been proved again and again. They enable the traveller to carry a comparatively large supply of medicines, and may be used under conditions which would render the carriage and administration of ordinary preparations impossible.



To the enthusiasm of Sir CLEMENTS MARKHAM, K.C.B., then President of the Royal Geographical Society, the successful organisation of the National Antarctic Expedition was largely due. Referring to the 'Tabloid' Medical Equipment of the *Discovery*, he reports:—

National Antarctic Expedition,  
1, Savile Row,  
Burlington Gardens, W.

The Medical Equipment of the Exploring Ship of the National Antarctic Expedition was entirely supplied by Messrs Burroughs Wellcome & Co., and, proved in every way most satisfactory.

The few other drugs and preparations which were taken with the Expedition were only supplied for purposes of experiment, and, can in no way be regarded as part of the medical equipment.

*Clement Markham*

*27. April 1905.*

DR. KÆTTLITZ, the Senior Medical Officer to the Expedition, reports:—

*Discovery* ANTARCTIC EXPEDITION

The Medical Equipment of the *Discovery* Exploring Ship, of the National Antarctic Expedition, was entirely supplied by Messrs. Burroughs Wellcome & Co., mostly in the form of 'Tabloid,' 'Soloid' and 'Enule' preparations.

The preparations proved in every way most satisfactory, and there was no deterioration of any of them, in spite of the conditions of climate and temperature to which they were exposed. The few other drugs and preparations which were taken with the Expedition were only taken for the purpose of experiment.

The cases supplied by Burroughs Wellcome & Co. to us have also been found satisfactory; the small leather one was very useful upon sledge journeys, being light and compact. The No. 251 'Tabloid' Case was used for some weeks at the camp eleven miles north of the ship, when the whole ship's company was engaged in sawing and blasting the ice, and it was found very convenient.

The other cases were useful in our cabins, etc., for a handy supply.

*Reginald Kættlitz*

BRITISH ANTARCTIC EXPEDITION, 1907-9

SIR ERNEST H. SHACKLETON on his memorable voyage with the *Nimrod*, when he penetrated to within ninety-seven miles of the South Pole, took with him as his sole medical equipment 'Tabloid' Medicine Chests and Cases, and the subjoined reports show that under the trying and difficult conditions of Antarctic exploration 'Tabloid' Medicines maintained their reputation for efficiency and stability.

British Antarctic Expedition, 1907-9

Copy of Report dated Sept. 17, 1909:—

The British Antarctic Expedition, 1907-9 was equipped with a very complete Medical Equipment contracted for solely by Messrs. Burroughs Wellcome & Co., and consisting of 'Soloid' and 'Tabloid' Preparations, which are the only forms that can be conveniently carried and preserved under such conditions.



The packets of compressed Dressings are in extremely convenient form. The Congo Cases (No. 251, 'Tabloid' Brand) were always used when at our base, and both the party of three who reached the South Magnetic Pole, and the party under Lieut. Shackleton, who attained a point 97 miles from the geographical South Pole, carried a brown leather 'Tabloid' Case and all the 'Tabloid' products that remain are now in as good condition as when first handed over to my care two years ago.

The "Nimrod" was also supplied with 'Tabloid' Cases and equipment.

The 'Tabloid' Photographic Outfit supplied by Burroughs Wellcome & Co. proved entirely satisfactory.

*Signed,*

British Antarctic Expedition, 1907-9,

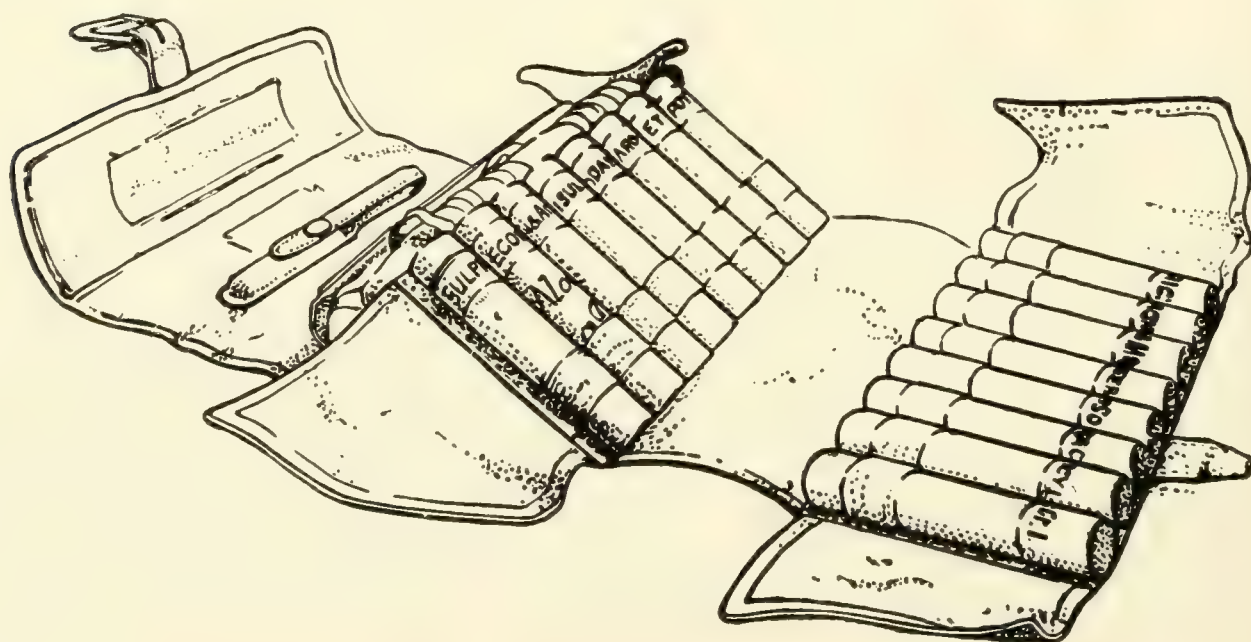
ERNEST H. SHACKLETON,

*Commander.*

ERIC P. MARSHALL, M.R.C.S., L.R.C.P.

Surgeon to the Expedition.

The 'Tabloid' Medicine Case carried "Farthest South" by SIR ERNEST H. SHACKLETON.



The full record of this Case, as given in the report from the Surgeon to the Expedition, is printed below.

Copy of Report dated Sept. 17, 1909:—

The B. W. & Co. Brown Leather 'Tabloid' Case herewith, was taken with party of six that made the ascent and reached the summit of Mount Erebus, 13,350 ft., March 5-11, 1908.

Used on Southern Journey under Lieut. Shackleton, \*October 28, 1908—March 4, 1909. Latitude 88° 23' S. Longitude 162° E.

Distance covered in this journey, 1728 statute miles.

Used on S. Depot Laying Party, from September 20 to October 15, 1908. Distance covered, 311 miles.

Taken on Depot journeys to Hut Point. Aggregating 150 statute miles.

Medicines quite satisfactory.

*Signed,*

E. P. MARSHALL, M.R.C.S., L.R.C.P.,

Surgeon to British Antarctic Expedition, 1907-9

\* Reached "Farthest South" Jan. 9, 1909

## RECORDS OF JOURNALISTS, TRAVELLERS AND SPORTSMEN

Mr. JULIUS PRICE, the special artist and correspondent of the *Illustrated London News*, reported that he carried his 'Tabloid' Medicine Case over 30,000 miles through Arctic regions, across Siberia, through China, Japan and America. Despite the severe wear and tear of this great journey, the case suffered little damage, and the remaining contents were quite unaffected by exposure to every variety of climate.

30,000 miles  
Arid desert and  
humid swamps  
Extreme heat  
and cold

Another interesting 'Tabloid' Medicine Chest is that which belonged to Dr. Charles Burland, who reported that it was used during a year's journey through Cashmere, Tibet, the high ranges of the Himalayas, and encountered a vast amount of rough usage by transport on the backs of coolies, elephants, camels, bullocks, etc. Intense cold in high latitudes on the Himalayas, as well as the heat and moisture of Indian monsoon weather in the lowlands, equally failed to affect its contents adversely.

Dr. Charles  
Burland

Sir Sven Hedin whose remarkable achievement in the exploration of Central Asia, when he set foot in one of the sacred forbidden cities of Tibet, is well known, took with him on his journey across the Himalayas, a 'Tabloid' Medicine Chest, and, in his fascinating book "Trans-Himalaya," he speaks in the highest terms of the utility and completeness of the equipment.

To this enterprising explorer his 'Tabloid' Medicine Chest was of great use, not only in providing medical treatment for his followers and himself on their long and



perilous march, but also in his diplomatic relations with the great Tashi-Lama.

We are indebted to the courtesy of his publishers, Messrs. Macmillan, for permission to quote the following description by Sir Sven Hedin of the presentation of his 'Tabloid' Medicine Chest as an offering of friendship, in accordance with Oriental custom, to the venerated chief of the Buddhist religious community at Tashi-Lunpo:—

“ ‘ Bombo Chimbo ’ [the name by which Dr. Sven Hedin was known], we know that you are a friend of the Tashi-Lama and we are at your service.”

\* \* \*

“ When we had conversed for two hours I made a move to leave him, but the Tashi-Lama pushed me back on to a chair and said, ‘ No, stay a little longer.’ Now was the time to present my offering. The elegant English Medicine Case was taken out of its silk cloth, opened and exhibited, and excited his great admiration and lively interest; everything must be explained to him. The hypodermic syringe in its tasteful case, with all its belongings, especially delighted him. Two monks of the medical faculty were sent for several days running to write down in Tibetan the contents of the various ‘ Tabloid ’ boxes and the use of the medicines.”

## ‘ TABLOID ’ MEDICAL EQUIPMENT FOR A SPORTING TOUR

### MR. ROOSEVELT IN AFRICA

Mr. Roosevelt on the occasion of his famous shooting expedition into Africa, took with him, in accordance with the precedent set by so many travellers in the Dark Continent, a “ Congo ” No. 251 ‘ Tabloid ’ Medicine Chest. His Medical Officer, Colonel E. A. Mearns, upon the return of the party, pronounced the outfit “ very satisfactory and useful.”

From almost all parts of the globe similar testimony to the durability and utility of 'Tabloid' equipments comes to hand, two typical reports are appended :—

Extract from the report of R. F. RAND, Esq., M.D., F.R.C.S., Principal Medical Officer, British South Africa Company :—

We have had Burroughs Wellcome & Co.'s "Congo" Chests, fitted with 'Tabloid' medicines, in daily use during the occupation of this country. They have proved of inestimable service.

Extract from the report of the late W. H. CROSSE, M.D., M.R.C.S., Principal Medical Officer, British Royal Niger Company :—

All these 'Tabloid' drugs are so good it is impossible for me to speak more highly of one than another. They are all of the very best quality, each drug is accurately described, and reliable. To the traveller these preparations are simply invaluable, and I would strongly advise everyone coming out to the Tropics to get a full supply of 'Tabloid' medicines.

BURROUGHS WELLCOME & Co. have for many years made a special study of the requirements of travellers and expeditions, not only in respect of compactness, portability and permanence, but also in the selection of remedies necessary to combat the maladies prevalent in every clime, from the Arctic to the Antarctic. In the course of their long experience in the medical equipment of exploring, military and sporting expeditions they have acquired a large fund of special information on this subject, which is always at the service of medical practitioners who may be called upon to act as expeditionary medical officers, or to give advice as to the supplies necessary for any climate.

Study of medicines  
suitable for every  
climate

'Tabloid' Brand Medicine Cases contain, in a small space, a complete outfit of pure drugs in doses of extreme accuracy. They can be carried in the pocket, in the carriage or motor-car, or on the cycle, their contents being always ready for use in emergencies. They are specially valuable to the country practitioner, who is often called upon to cover long distances, and who would experience great difficulty in carrying or obtaining supplies of such medicines as he may desire to administer promptly, were it not for the convenience and portability of 'Tabloid' Brand Medicine Cases.

Emergency Cases  
for pocket,  
cycle, motor or  
carriage

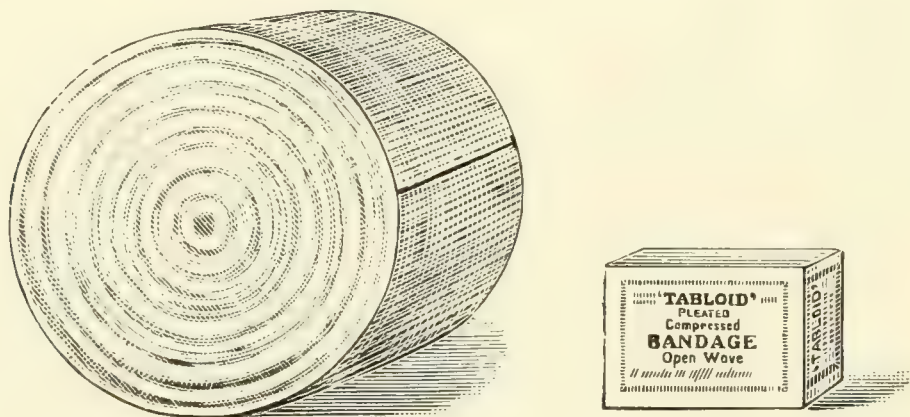


TRADE  
MARK 'TABLOID' BRAND

• PLEATED COMPRESSED  
BANDAGES AND DRESSINGS

Pleated Compressed Bandages and Dressings were originated  
and introduced by Burroughs Wellcome & Co.

'TABLOID' BANDAGES AND DRESSINGS provide the means of applying strictly scientific treatment, and, in cases of accident, enable those on the spot to render first-aid treatment should medical assistance be unavailable or delayed. Their use in such emergencies may prevent serious complications which frequently arise in minor accidents, and from the neglect of wounds, abrasions, etc.



Graphic representation showing relative bulk of an ordinary  
and a 'Tabloid' Bandage, each 6 yds.  $\times$  2-1/2 in.  
(One-half actual size)

'TABLOID' Bandages and Dressings are made of materials of the finest quality, very highly compressed. Each is enclosed in an efficient protective covering, thus securing freedom from all risk of contamination. For all purposes, whether at home or when travelling, they are superior to the ordinary varieties and their advantages are obvious.

NOTE.—A further important advance, original with B. W. & Co., is the issue of these 'Tabloid' Bandages and Dressings—*sterilised*.

“The strong thing is the just thing”

*Carlyle*

‘Tabloid’ marks the work of Burroughs Wellcome and Company.

The use of the word is to enable the prescriber, dispenser and patient to get the right thing with one short word, instead of the firm’s long name.

If another maker apply the word to his product, the act is unlawful. ‘Tabloid’ is our trade mark.

If a vendor disregard it, in dispensing or selling, the act is unlawful—for the same reason.

We prosecute both offenders rigorously, in the interest of prescribers, dispensers, patients and ourselves.

Please inform us of any instance of either offence.

BURROUGHS WELLCOME & Co.



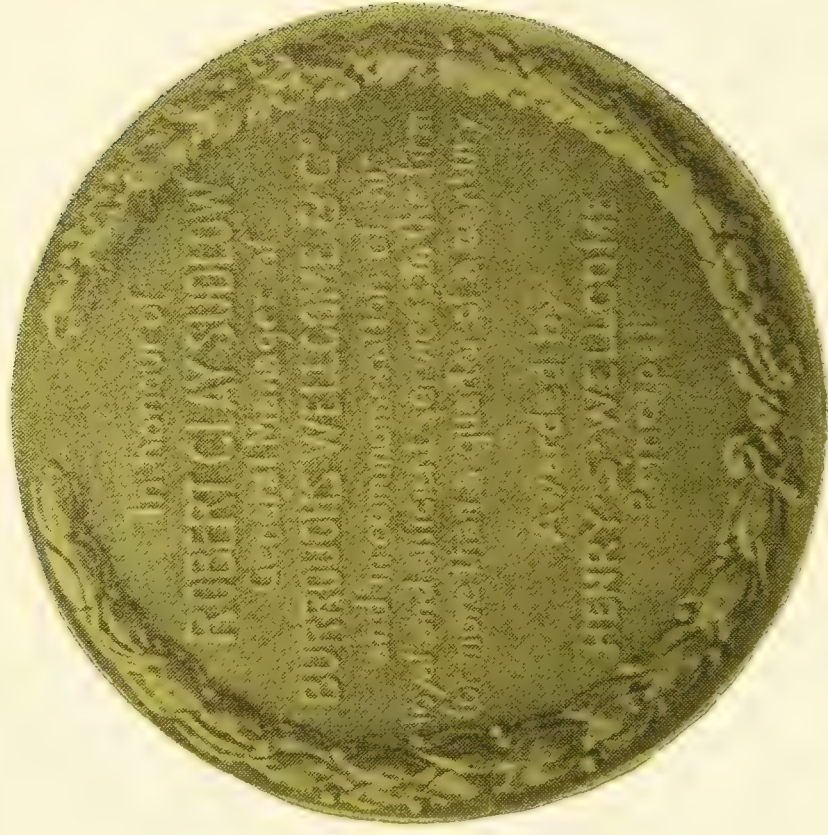


DRILL OF BURROUGHS WELLCOME & CO.'S FIRE BRIGADE



BY CHEMICAL INDUSTRY WE THRIVE





OBVERSE AND REVERSE OF A GOLD COMMEMORATION MEDAL

Specially designed and struck in honour of Robert Clay Sublow, and presented to him in commemoration of his loyal and efficient services to the firm for more than a quarter of a century

Mr. Sublow is now Treasurer of the Firm, having retired from the position of General Manager



THERE'S A TIME FOR WORK

WELFARE  
WORK

AND A TIME FOR PLAY





BIRD'S-EYE VIEW OF WELLCOME CLUB AND INSTITUTE  
BUILDINGS AND GROUNDS

## THE WELLCOME CLUB AND INSTITUTE

“And all this house was peopled fair  
With sweet attendance, so that in each part  
With lovely sights were gentle faces found,  
Soft speech and willing service; each one glad  
To gladden, pleased at pleasure, proud to obey.”

*Sir Edwin Arnold*



"The true veins of wealth are purple—not in rock, but in flesh—and the final outcome and consummation of all wealth is in producing as many as possible full-breathed, bright-eyed and happy-hearted creatures."

*Ruskin*

## OBJECTS OF THE WELLCOME CLUB AND INSTITUTE

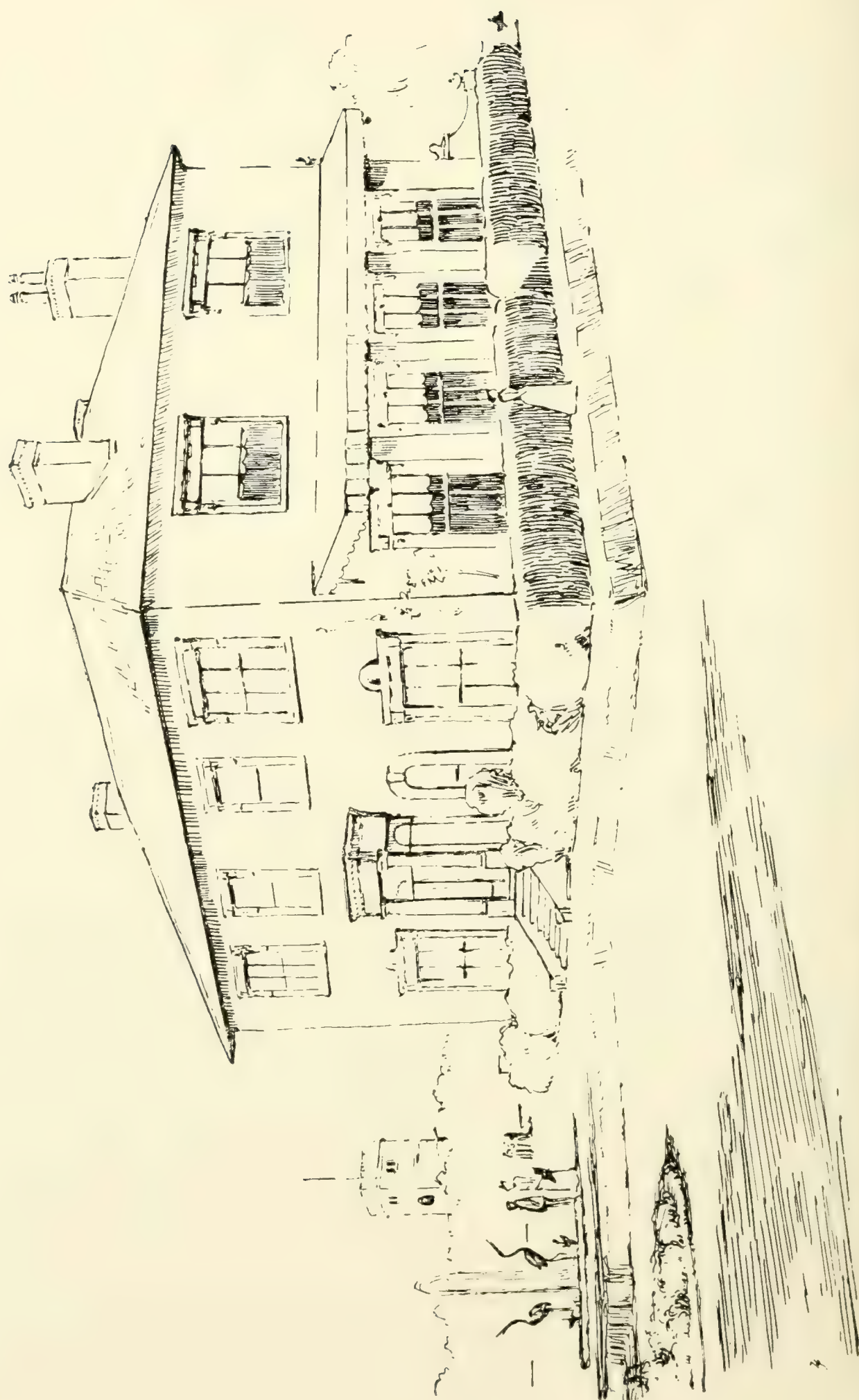
From the first, Welfare Work has been a special feature with the firm. This Club and Institute is a part of the general scheme, and was founded for the benefit of the employees of BURROUGHS WELLCOME & Co., amongst whom are included a large number of professional scientific workers. The premises consist of the old manor house formerly known as Acacia Hall, together with other buildings which provide libraries, reading rooms, assembly rooms and a gymnasium. These are surrounded by an extensive park through which the river Darent runs.

The objects of the club are—to promote harmony and happy social intercourse amongst the employees and to supply them with a pleasant resort out of business hours—to encourage mental and physical recreation by means of music, literary and other entertainments, technical and other instruction classes with occasional lectures, and athletics, field sports and games.

The Executive Committee of the club regulates the conduct of the club and controls the use of the river for boating, swimming, fishing, etc., as well as the gymnasium, library, museum, baths, sports fields, games and various other features. All suitable technical journals and a large selection of newspapers, magazines, etc., are available in the reading rooms.

All employees willing to attend the DARTFORD TECHNICAL INSTITUTE have their fees paid, and the firm gives prizes through the Institute for proficiency in the technical subjects in which it is interested.



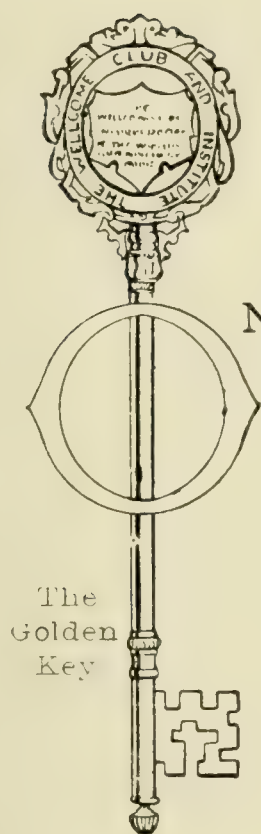


CLUB HOUSE FOR MEMBERS OF THE STAFF

Containing music room, ladies' sitting, dining, writing and dressing rooms; gentlemen's sitting, dining, writing, and committee rooms

INAUGURATION OF THE  
WELLCOME CLUB AND  
INSTITUTE, JUNE 24, 1899

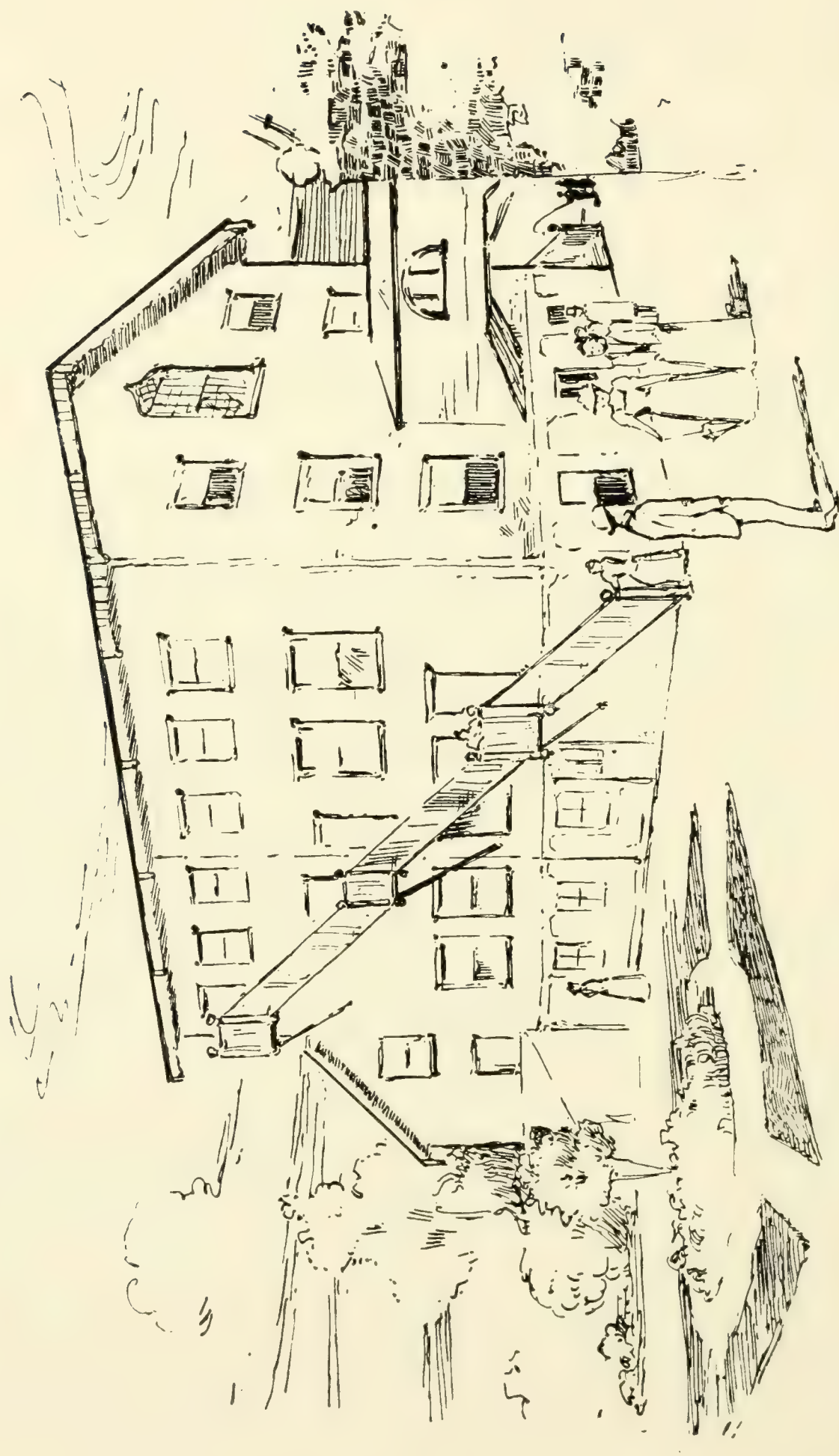
*(Reprint from Press Report)*



ONE of the most interesting events which have taken place in the town of Dartford for many years past was the opening of the Wellcome Club and Institute. When it is remembered that the prosperity of the town is so closely identified with that of its greatest industry, it is not surprising that Saturday's event evoked so much enthusiasm throughout the district. Messrs. Burroughs Wellcome & Co. have always been recognised as model employers, and the events of the day bore eloquent testimony not only to this kindly consideration of the welfare of their employees, but also to the precision, exactness and marvellous organisation which have always characterised their work.

The club has been founded by Mr. Wellcome, the head of the firm, to provide the employees with opportunities for recreation, and for promoting technical education. With these ends in view, he acquired the Manor House, commonly known as Acacia Hall, together with its beautiful and extensive grounds, through which flows the river Darent. The manor house itself and the adjoining buildings have been elaborately fitted and furnished to meet the new requirements. A large gymnasium and extensive baths and lavatories with the most perfect modern fittings have been built, and the grounds beautifully laid out for the purposes of enjoyment and recreation.





THE LIBRARY BUILDING AND CLUB HOUSE FOR LADY EMPLOYEES  
 Ground floor: ladies' tea rooms. First floor: ladies' sitting, sewing and writing rooms. Second floor: reading room and library. Third floor: general concert and lecture hall.

No pains or expense have been spared in any direction, and it is doubtful if there is any body of employees in the world which can boast of so magnificent a club and pleasure park.

#### THE DAY'S PROCEEDINGS

The proceedings on Saturday were favoured with perfect weather, and great credit is due to those responsible for the arrangements, which were admirably carried out. At 11 a.m., immediately after the special train conveying the London visitors steamed into Dartford station, the day's programme commenced with a fire drill at the firm's works and laboratories. From the station platform an excellent view was obtained. Sir Hiram Maxim, the distinguished engineer, who was present, timed the display and stated that the streams of water from four principal points were in full play within two minutes of the sounding of the alarm which called out the firemen.

#### SERVICE AT THE PARISH CHURCH

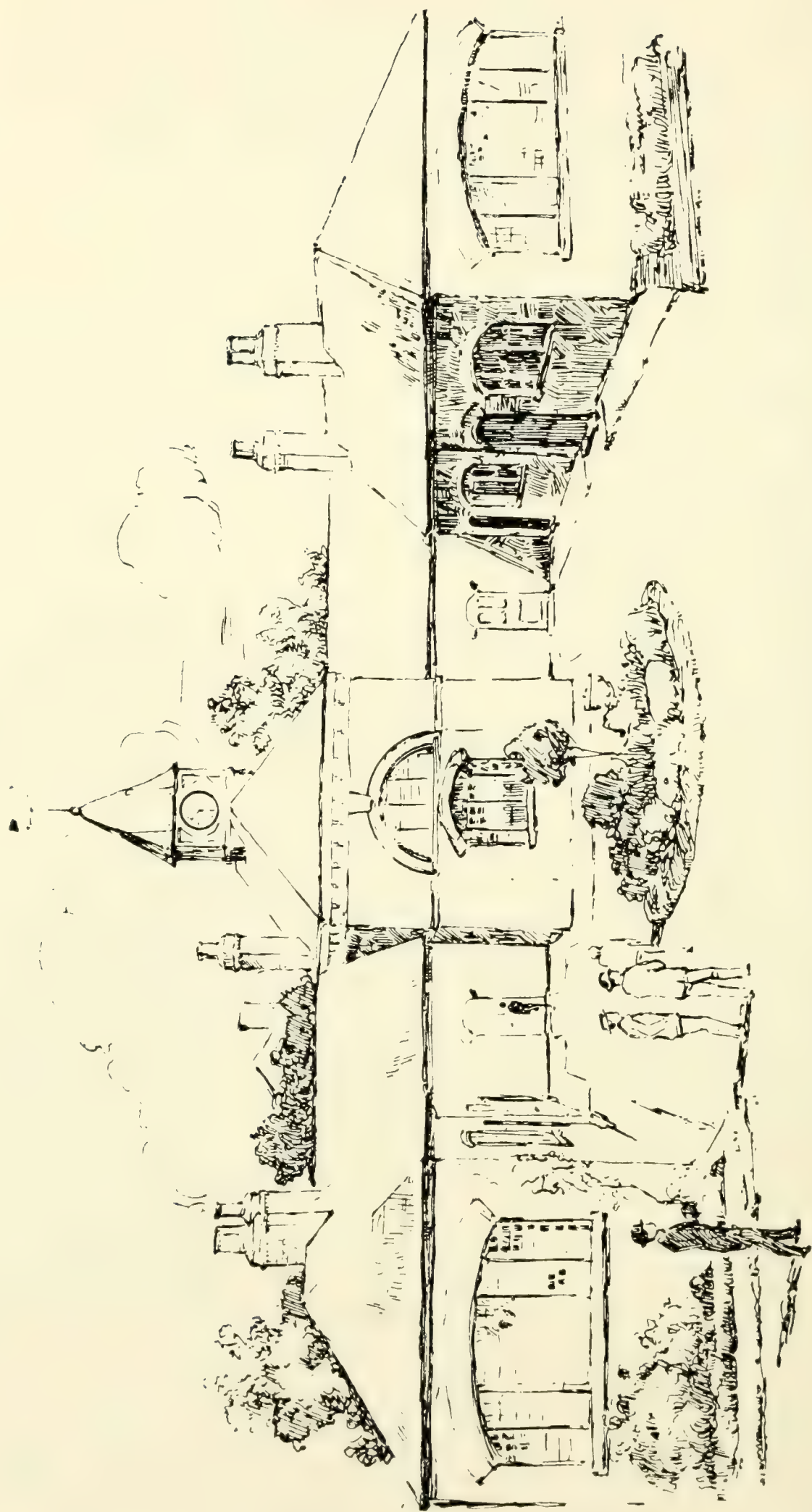
The company then proceeded to the historic old Parish Church, which was quickly filled by the visitors and the firm's employees. The service, conducted by the Rev. E. P. Smith, Vicar of Dartford, was, although simple and undenominational in character, a beautiful and impressive ceremony, in which were appropriately included the following texts:—

“Bear ye one another's burdens, and so fulfil the law of Christ.”—*Gal. vi. 2.*

“And that ye study to be quiet, and to do your own business and to work with your own hands, as we commanded you; that ye may walk honestly towards them that are without, and that ye may have lack of nothing.”—*1 Thess. iv. 11 and 12.*

The service over, the party, headed by visitors and the principal members of the staff, accompanied Mr. Wellcome from the church to the gates of the club, where Mr. Sudlow, the general manager, presented his chief with a golden key.





CLUB HOUSE FOR GENTLEMEN EMPLOYEES

Containing sitting, writing, smoking, tea rooms, etc.

Mr. Sudlow said: "Mr. Wellcome, the members of the management in London and at Dartford beg your acceptance of this key as a memento of this very interesting occasion."

Mr. Wellcome unlocked and swung open the gates, saying: "I declare this Club and Institute now open, and may God bless and prosper it." The visitors were then conducted over the club buildings and through the grounds, which were much admired.

### THE LUNCHEON

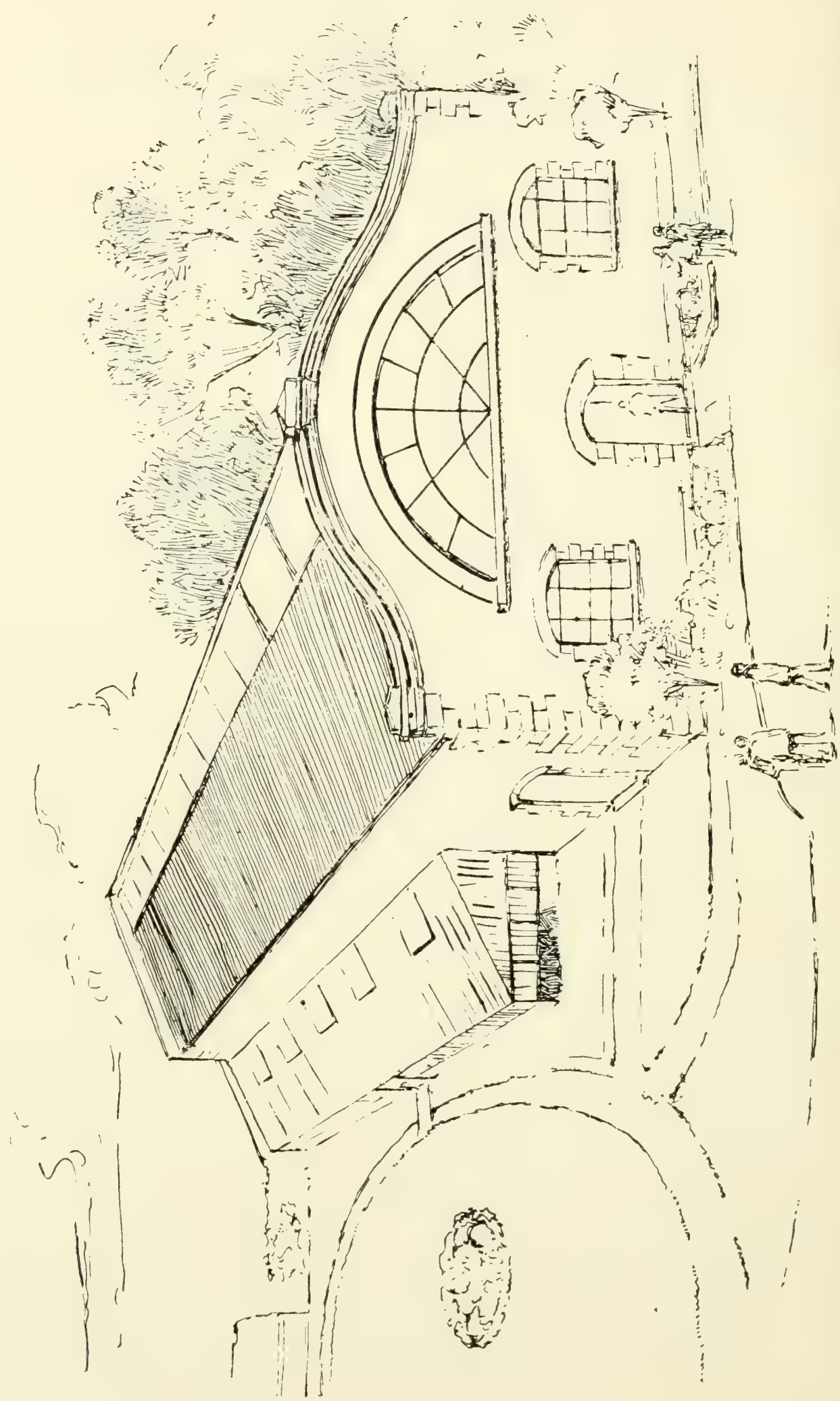
At 12.30 an adjournment was made for luncheon. About eleven hundred sat down to an excellent repast in an enormous marquee erected in the club grounds, all the company, except a few visitors, being employees and wives of employees. Mr. Wellcome acted as chairman and Mr. Sudlow as vice-chairman. After the loyal toasts—

### THE TOAST OF THE DAY

"THE EMPLOYEES—SUCCESS TO THE WELLCOME CLUB  
AND INSTITUTE"

THE CHAIRMAN said: "Most of those assembled here to-day are employees of the firm. People often speak to me with wonderment at the good relations which exist between the firm and its employees, and the explanation which I have always been able to give in reply to such comments is that there is mutual consideration. It is and always has been the policy of the firm to consider the welfare of everyone associated with it, and by our bearing, our warmth of feeling, and our interest in the welfare of our employees we have won consideration from them; and we have a corps of employees, which, I am proud to say, I believe surpasses any similar body of people employed by any other firm in the world."





GYMNASIUM AND ASSEMBLY ROOM

Fully equipped with all apparatus necessary for the practice of indoor athletics

“ By our care in selecting those who possess not alone the required talents and qualifications, but who are also in hearty sympathy with us in our unique work, and by fostering mutual regard, we secure not only the hand work, but the heart work, of those who are associated with us. We have not only efficiency and devoted zeal amongst our great chiefs who form our Managerial Staff, and in the distinguished Directors of my Chemical Research Laboratories and of the Physiological Research Laboratories, but also expert workers as Heads of Departments, and again in the personnel of their staffs, and yet again amongst the rank and file. I must pay a special tribute to the efficiency of the Ladies' Departments, so ably presided over by the talented Lady Superintendent, ably supported by a highly-qualified staff of lady assistants, some of whom are efficient scientific workers.

“ It is peculiarly gratifying to me to-day, in inaugurating this club, to feel that I meet with those associated with me heart to heart. A strong spontaneous expression has come to me from the employees, which accords perfectly with my own ideas and sentiments, that this club should not be regarded as a charitable institution, but should be self-supporting. I want it to be a resort and meeting-place for the promotion of harmony and happiness amongst the employees—an institution for mental and physical recreation and development, where all shall be knitted closer together in personal friendship. I am certain that a charitable institution, or what is usually so-called, is not what we want. None of the employees of Burroughs Wellcome & Co., I am thankful to say, are in need of charity. They are self-respecting, self-reliant and self-supporting, and I want them always to continue so. I am doing, and shall do, all I can practically to facilitate the work of organisation and equipment. The premises, suitably furnished and maintained, I am very gratified to offer for the purposes of the club and institute.

“ I rely upon the members working hand in hand and heart to heart to make a success of this institution on a self-





BRIDGE OVER THE DARENT -  
Connecting the lawn with the orchard, garden and playing fields

supporting basis. It is my strong desire that every employee will become a member of the club and institute. We shall have an administrative committee, but also every member of the club should regard himself or herself as a member of a grand committee with duties to perform. It is essential to the success of this club that the members should all strive to bury every selfish desire in order to promote the happiness of their associates. We had some beautiful texts this morning during the inaugural service at the church. I want to recall one—'Bear ye one another's burdens.' We know that those who seek their own selfish gratification in this world are the least happy, and those who try to bear each other's burdens and to assist each other, get the greatest happiness to be found in this life. Following such a course requires self-sacrifice, and I hope everyone will keep this text in view, and that it will be the first and constant thought and endeavour of members of this club and institute to make others happy.

"I cannot sufficiently express to the members of the Management at London and Dartford, who have presented me with a golden key with which to unlock the gates of this club and institute, how deeply touched I am by this expression of their kindness. I am always receiving kind consideration and support from these, my valued associates. I shall always treasure this jewel. Those beautiful giant storks, in antique bronze, which grace the fountain immediately within the entrance to the grounds, were presented to us by Mr. Lloyd Williams, of the Works Management. We all deeply appreciate his generous gift of these superb works of art. Let us drink heartily the toast 'The Employees, and Success to the Wellcome Club and Institute,' and I associate with the toast the name of Mr. R. Clay Sudlow, our esteemed General Manager, the oldest member of our staff, and my invaluable right-hand support in the direction of this business."

MR. R. CLAY SUDLOW replied: "Before I refer to the toast that has been so very kindly proposed from the





### THE GARDEN CREEK

Is a tributary of the Darent, dividing the orchard from the kitchen garden

chair, I believe I shall be expressing the feelings not only of the employees, whom I am very proud to represent, but also of the visitors who have honoured us with their presence, when I say how glad we are to have Mr. Wellcome with us to-day in renewed health. He is the hardest worked and the hardest working member of our large community, and it is a matter for very sincere rejoicing that, after another twelve months of incessant thought and labour in the conduct of this business, he is able to preside over us on this unique occasion, this red-letter day in the annals of the firm, with his accustomed force and vigour.

“I cannot but think that the knowledge gained by us here this morning as regards the extent of the provision made for our comfort and happiness, of the advantages and privileges secured to us by this club and institute, is a perfect revelation. The idea of this club, as we all know, originated with Mr. Wellcome. It is absolutely his creation, and we owe him a very deep and lasting debt of gratitude for the initiation of the scheme, and for the immense amount of thought and study that he has so ungrudgingly given, in order to make this club perfect and complete in every detail.

“If I mistake not, our visitors have already come to the conclusion that to be an employee of the firm of Burroughs Wellcome & Co. is to occupy a very happy and a very privileged position. As the oldest member of that body—next year I shall attain my majority in Mr. Wellcome’s service—I am glad to assure our visitors that their conclusion is an absolutely just one. Mr. Wellcome has proved himself a master whom it is at once a pride, a pleasure, and an honour to serve, and there are many of us here present to-day who, having given him our best, feel that we fall very short of the service that we would desire to render him.

“Mr. Wellcome, you have told us that you do not want, and that you do not look for thanks, but I do hope that





THE SPORTS FIELD  
The first of the playing fields

you will allow us to express our very deep appreciation of your generous kindness in placing this club at our disposal, of the personal feeling you have thrown into the undertaking by loaning to the club many of those treasures that you have been at such pains during many years to collect, and of your friendly goodwill in allowing us, in accordance with our unanimous wish, to call this club by your own name. We sincerely hope that you will be spared for many years to witness, and to rejoice in, the complete fulfilment of the high ideal that you have formed with regard to your employees and may that realisation be brought about in a great measure by means of the Wellcome Club and Institute, so happily and so successfully inaugurated to-day."

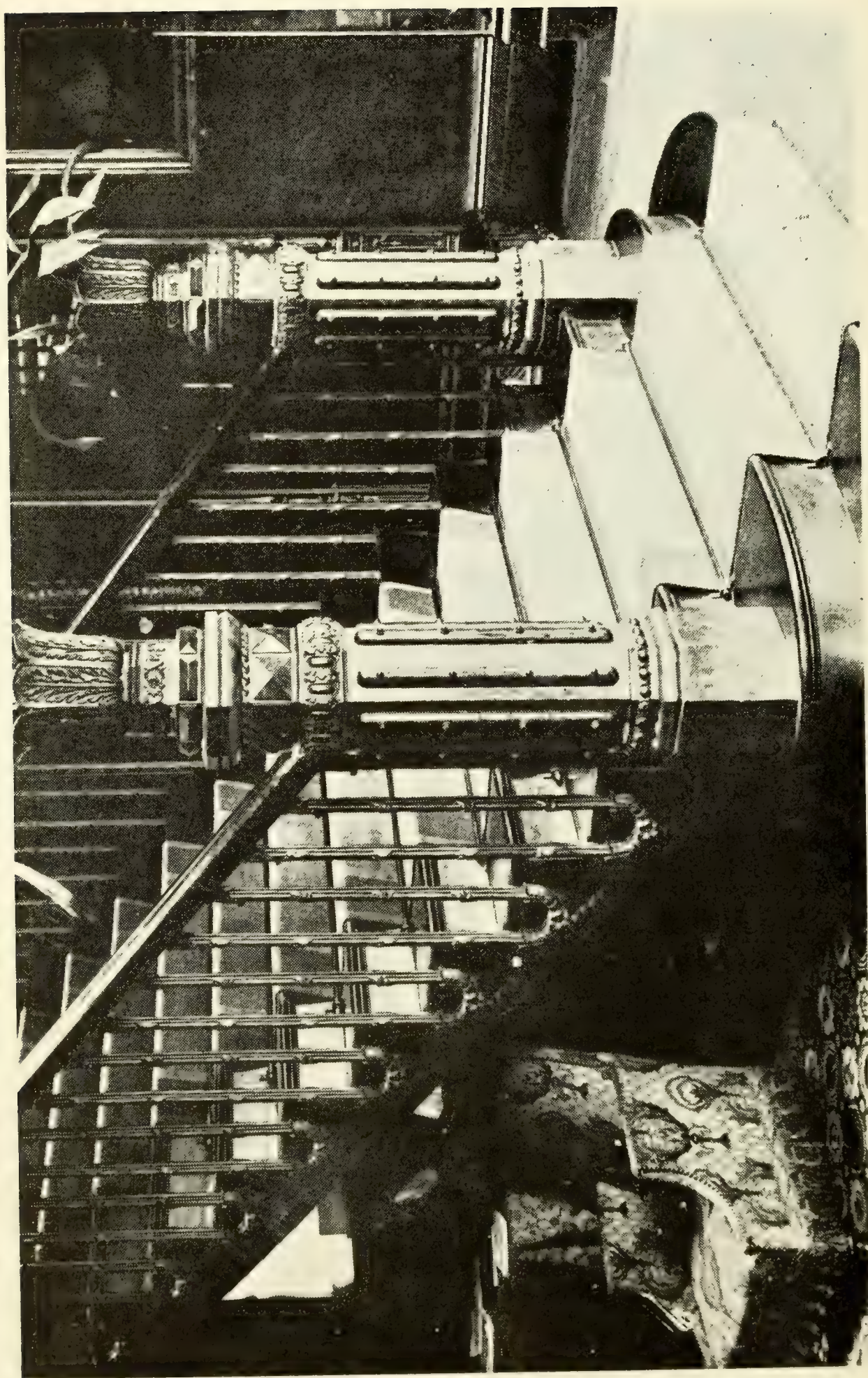
TOAST: "THE FIRM."

PROFESSOR JOHN ATTFIELD, F.R.S., said: "I have the great honour of asking you to drink to the continued prosperity of the firm of Messrs. Burroughs Wellcome & Co. I assume that everyone present is interested in the leading work of this firm, which is the association of scientific and commercial pharmacy.

"The firm is distinguished in many ways. It is distinguished for its progressive spirit. I look at the various journals of pharmacy and medicine that are published in our Colonies and India, as well as those published in the United Kingdom, and I never take up one but I find the mention, and sometimes a very long mention too, of this firm. A second great characteristic of the firm is the entire reliability of all the articles it sends out. I am sure no one could have followed its development without noticing the wonderful originality that has always characterised it; and I may add that all this is chiefly due to the present head of the firm, Mr. Wellcome, and his wonderful skill in organisation in every department.

"Talking of organisation, we who are here to-day as visitors, must, I am sure, have been charmed by the evidence of organisation which we have seen from the time





STAIRCASE  
Staff Club House

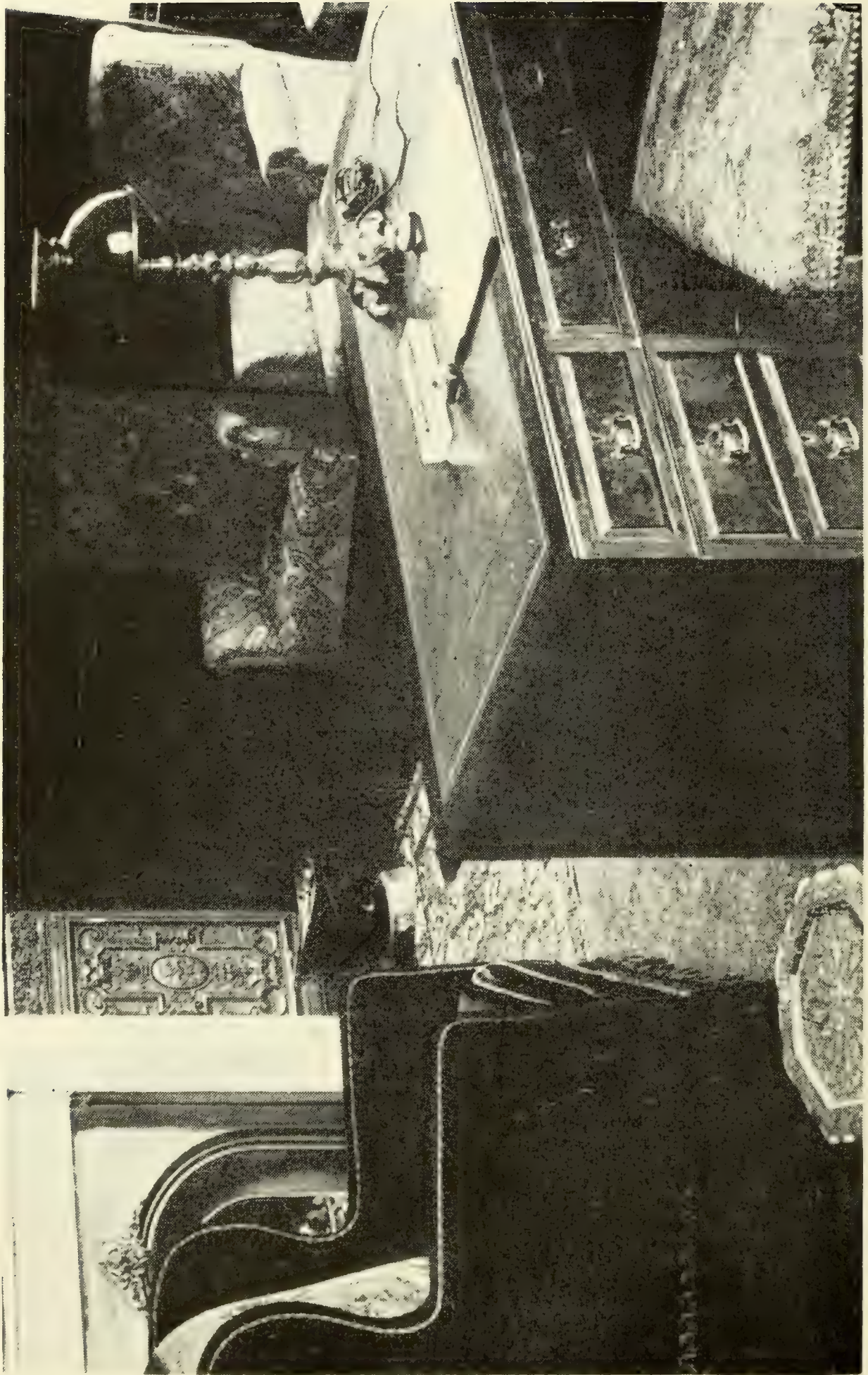


we left Charing Cross till the present moment. The great comfort of the arrangements of that special train that was provided for us; and, when we had arrived at Dartford station, the very interesting fire alarm drill, with its wonderful evidence of promptitude and precision; the extremely beautiful and, I may add, poetic inauguration service at the church, and the interesting, though it has been termed formal, opening of the Club and Institute, by Mr. Wellcome. I was very proud indeed, seeing that I have known the principals of the firm for so many years, and have watched their progress, to be the first one welcomed on this occasion by Mr. Wellcome when he opened the gates with that beautiful golden key, which has been presented to him by his managers.

“ I feel sure you will respond to this toast for, perhaps, a deeper reason than I have offered you up to the present time, and this is the spirit which characterises this firm from beginning to end, and which I take to be, first, the promotion of scientific and commercial research, and secondly, the promotion of good-fellowship amongst all the employees. Now, here I venture to speak, as Mr. Wellcome said, from the heart to the heart, because of my extreme interest in all that relates to research in pharmacy and the promotion of friendly intercourse amongst those who follow that calling. It is now 36 years since a few of us assembled in a very small room at Newcastle, and ventured to start an association (The British Pharmaceutical Conference) having objects which I find reflected here to-day—that is, the promotion of research in connection with pharmacy, and the promotion of good fellowship amongst the followers of that calling. I allude to it as I want to remind you once more that the objects of that society, which we ventured to set forth as objects that could be followed by the principals and by the employees of every pharmacy in this country, are the principles which are so successfully prosecuted by the firm of Burroughs Wellcome & Co.

“ I cannot but rejoice and congratulate Mr. Wellcome on the fact that, in addition to his organisation of scientific





SITTING ROOM  
Staff Club House



and commercial research coupled with good fellowship, as indicated by this club, financial success, which has been abundantly deserved, has been realised.

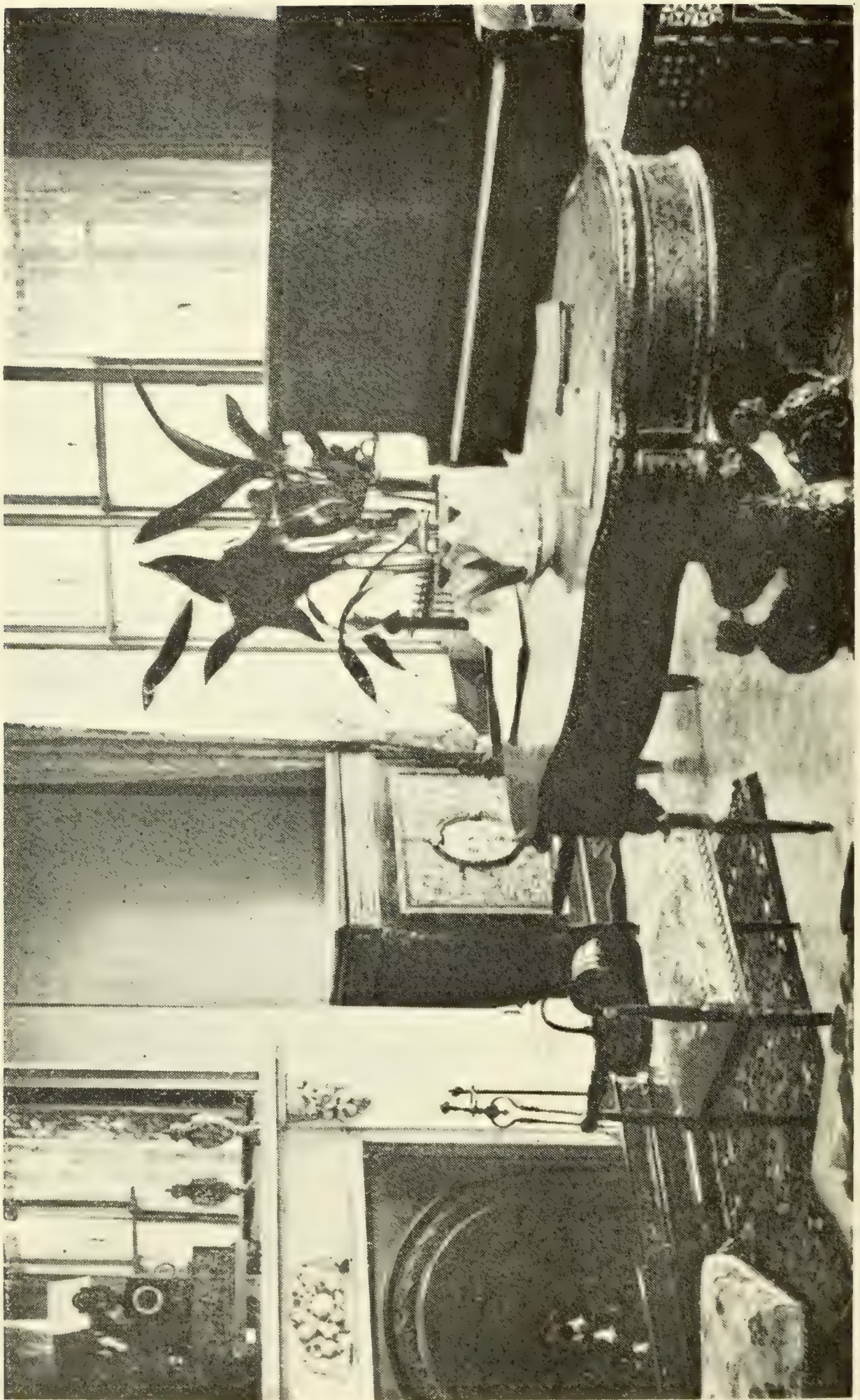
"I must allude, before I sit down, to one other great pleasure that has forced itself upon me, though I must not say much about it, because a compliment to myself is in it, and that is that in every department of this great firm I find myself here to-day welcomed by my old pupils. Their merits have been realised by this firm, and I can assure them, though I am perfectly certain they need no such assurance, that the men they have obtained from the Bloomsbury Square Laboratories and Lecture Rooms were some of our brightest ornaments during the whole time I was connected with that Institution, viz., from 1863 to 1896. I come here and I find Mr. Lloyd Williams, Dr. Jowett, Mr. Carr, and many others—but really they are too numerous to mention—all old students who distinguished themselves at Bloomsbury Square, now occupying prominent and responsible positions in this firm.

"On all these grounds—and you will see I have given you a wealth of reasons—I heartily offer the toast of Messrs. Burroughs Wellcome & Co., and I will associate with the toast the name of the chief ornament of the firm, Mr. Henry S. Wellcome."

Mr. WELLCOME replied: "No one could fail to be deeply gratified by the honour Professor Attfield has done to our firm and to me. I, as a youth, took my first lessons in chemistry from Professor Attfield's text-book. This great master led my first steps in gaining a knowledge of chemistry, and I feel it a peculiar honour that he should have paid such a tribute to the results of the efforts to which I have devoted my life.

"Professor Attfield touched upon one feature of our work which is especially dear to me, that is my two Scientific Research Laboratories. We are sometimes asked





MUSIC ROOM  
Staff Club House



to say more about what is being done there. Our products constantly indicate to the profession important results. But you are not likely to learn the details of all our doings in the outside world. There is much extremely important work going on in these research laboratories of the highest scientific and practical importance—work that is satisfactory to us as marking progress and which promises us still greater advancement. The greatest work is sometimes done silently.”

TOAST : “ THE PRESS AND VISITORS.”

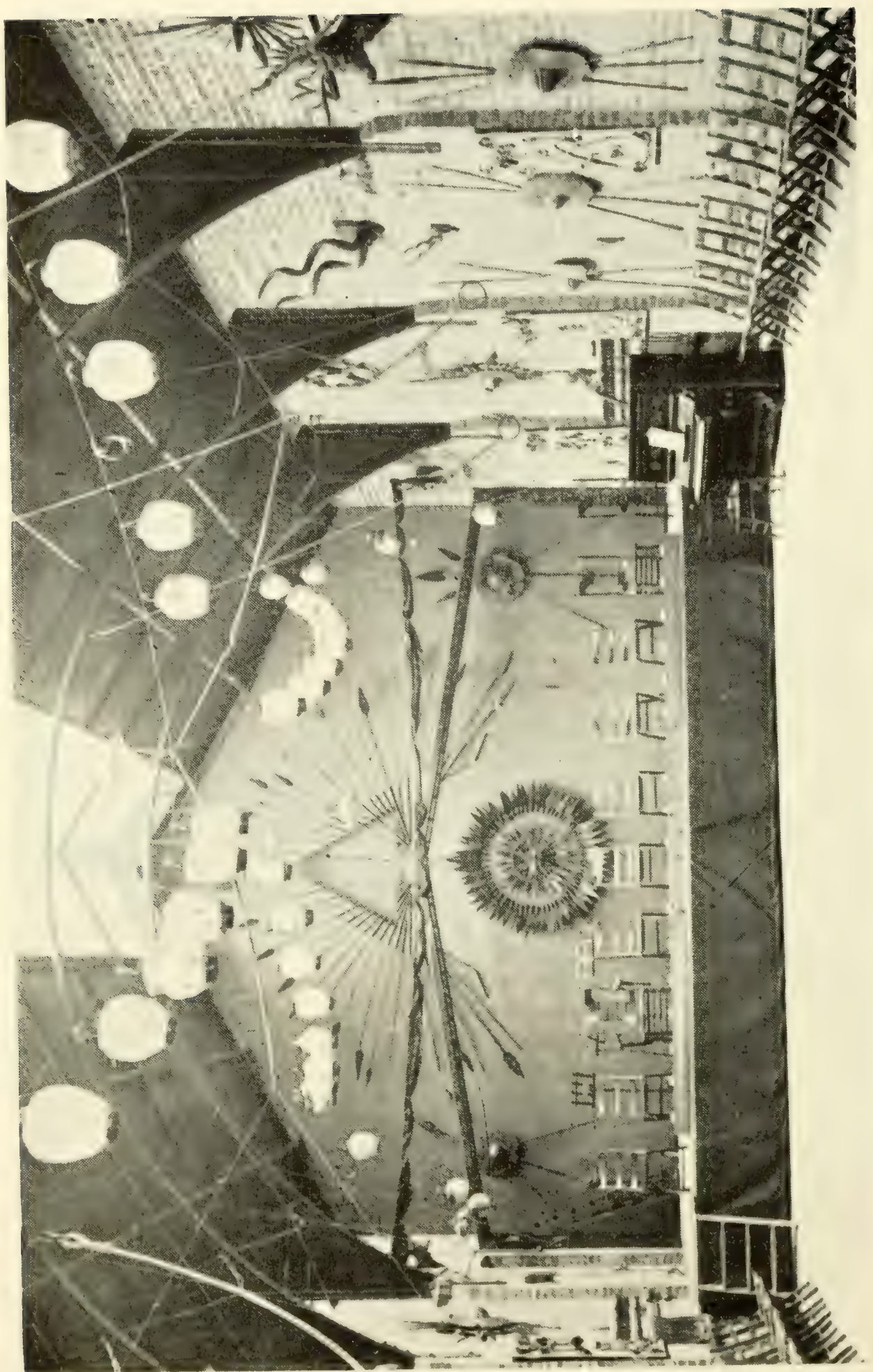
THE CHAIRMAN said : “ We are honoured by the presence of distinguished visitors from the four quarters of the globe, and some of these are old and intimate personal friends of mine, who have strengthened me in my work by their counsel and their friendship. There are those of the Press here who have not failed when we have done anything that merited it to chronicle it, and this has been greatly to our advantage. We have only asked to be treated on our merits, and we have been treated justly by the Press. I will ask you to drink very heartily to the toast of The Press and the Visitors, connecting with the toast the name of Dr. Creasy, of the *British Medical Journal*.”

DR. CREASY replied : “ It is a very great privilege to be the guest of a firm like this. It is a privilege, moreover, because this firm is one that has gained, and gained rightly, the highest repute in the world for good scientific work of every description. What the Press says is only what is due to the splendid work that is done by the firm.”

#### ENTERTAINMENTS

Shortly after luncheon an adjournment was made to the sports field for a pretty floral maypole dance by a group of lady employees. This was followed by athletic sports, most of the events of which were very keenly contested and watched with intense interest. Tea was then served in the great marquee.





INTERIOR OF GYMNASIUM AND ASSEMBLY ROOM



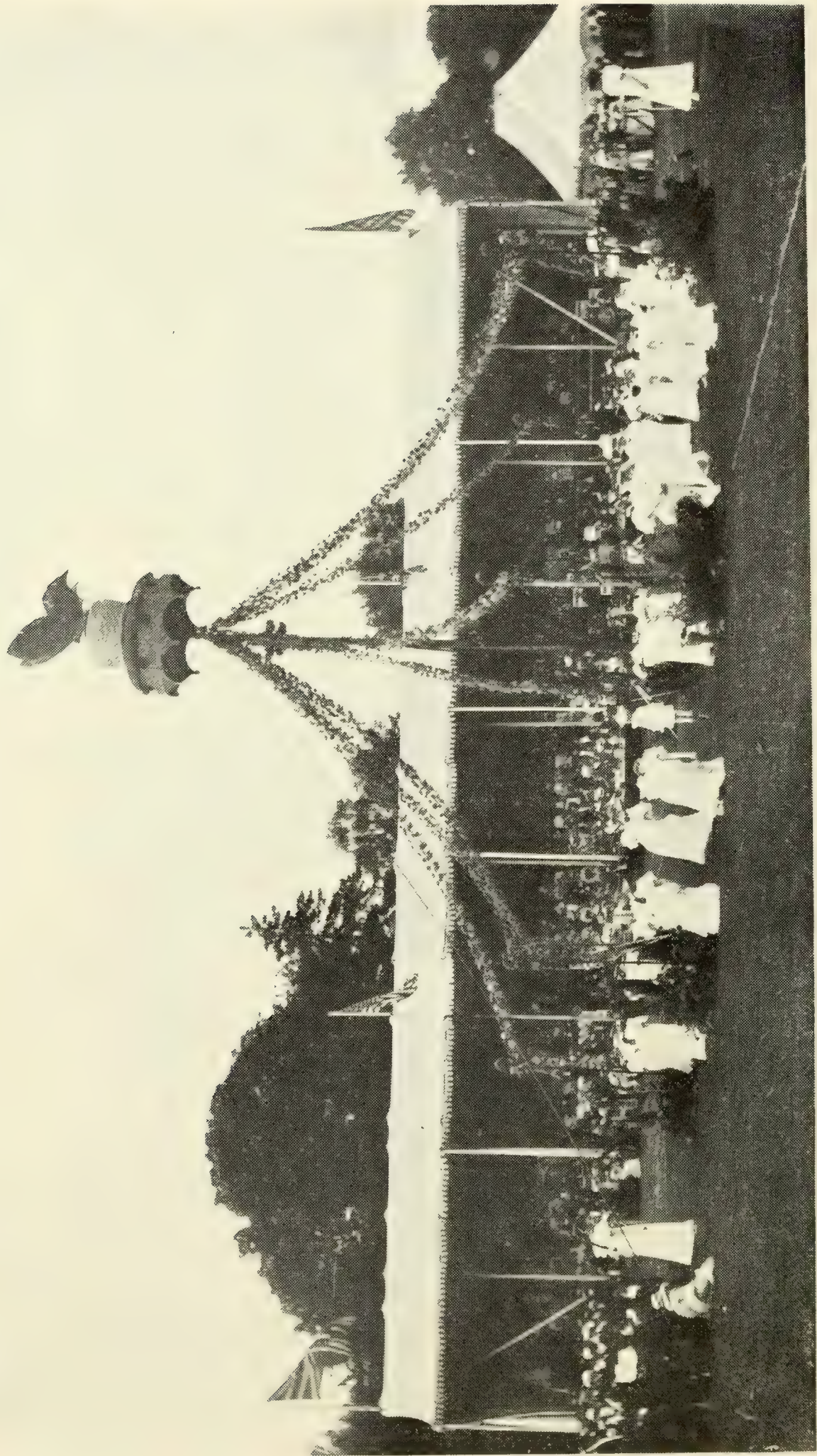
In the evening there were well-contested aquatic sports, and a graceful and artistic musical bicycle ride by lady employees, the cycles being elaborately decorated with flowers. The presentation of the prizes followed, and the day's entertainment culminated in a magnificent display of fireworks and an illumination of the grounds. The twinkling of hundreds of fairy lights effectively arranged throughout the grounds, the glow of Chinese lanterns everywhere among the trees, and the flood of coloured light from the fireworks, combined to form an entrancing spectacle, which was further enhanced by the quivering reflections in the river and lake. It formed a delightful setting to the final events of a day which was as enjoyable as it was unique in the history of chemical industry.

The absolute precision with which every item in the programme, from early morning until nearly midnight, was carried out, was evidence of a most complete and painstaking organisation, and was commented upon by scientific visitors as typical of the firm's remarkable scientific exactness in other directions.

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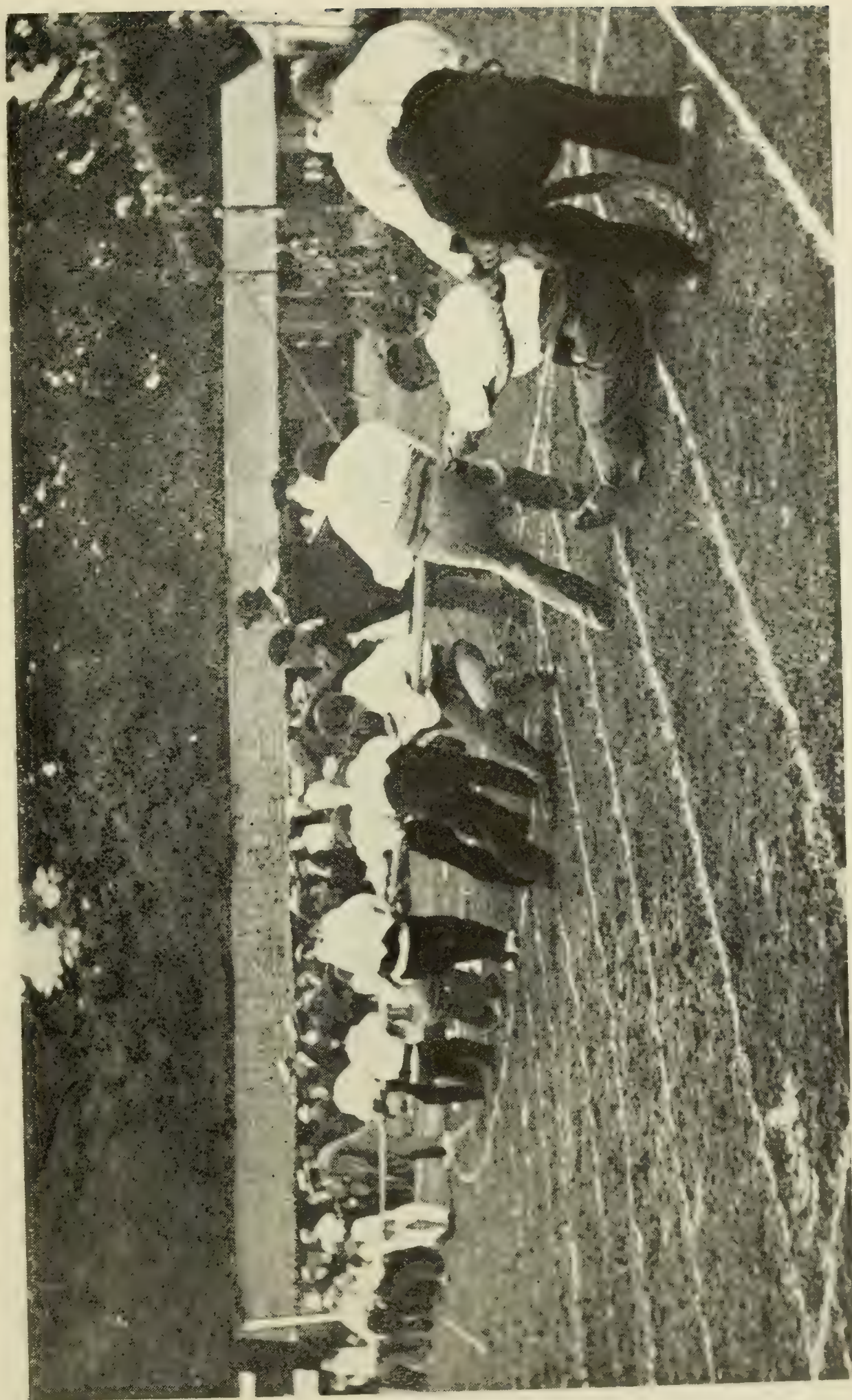
The Wellcome Club and Institute thus happily inaugurated in 1899 has continued to thrive during the last twelve years, and has formed an attractive centre for social recreation and intellectual intercourse for the employees of the firm. Associated with it are now several subsidiary societies and sports clubs, all conducted by committees appointed by their respective members, and affording a congenial sphere of activity for widely differing tastes. These include the Philharmonic, Photographic and Horticultural Societies, the Hockey Club, the Ladies' Hockey Club, Croquet, Tennis and Cricket Clubs. There is also a very successful Book Club and Entertainment Committee which periodically concerns itself with fêtes, garden parties, concerts and other social events.





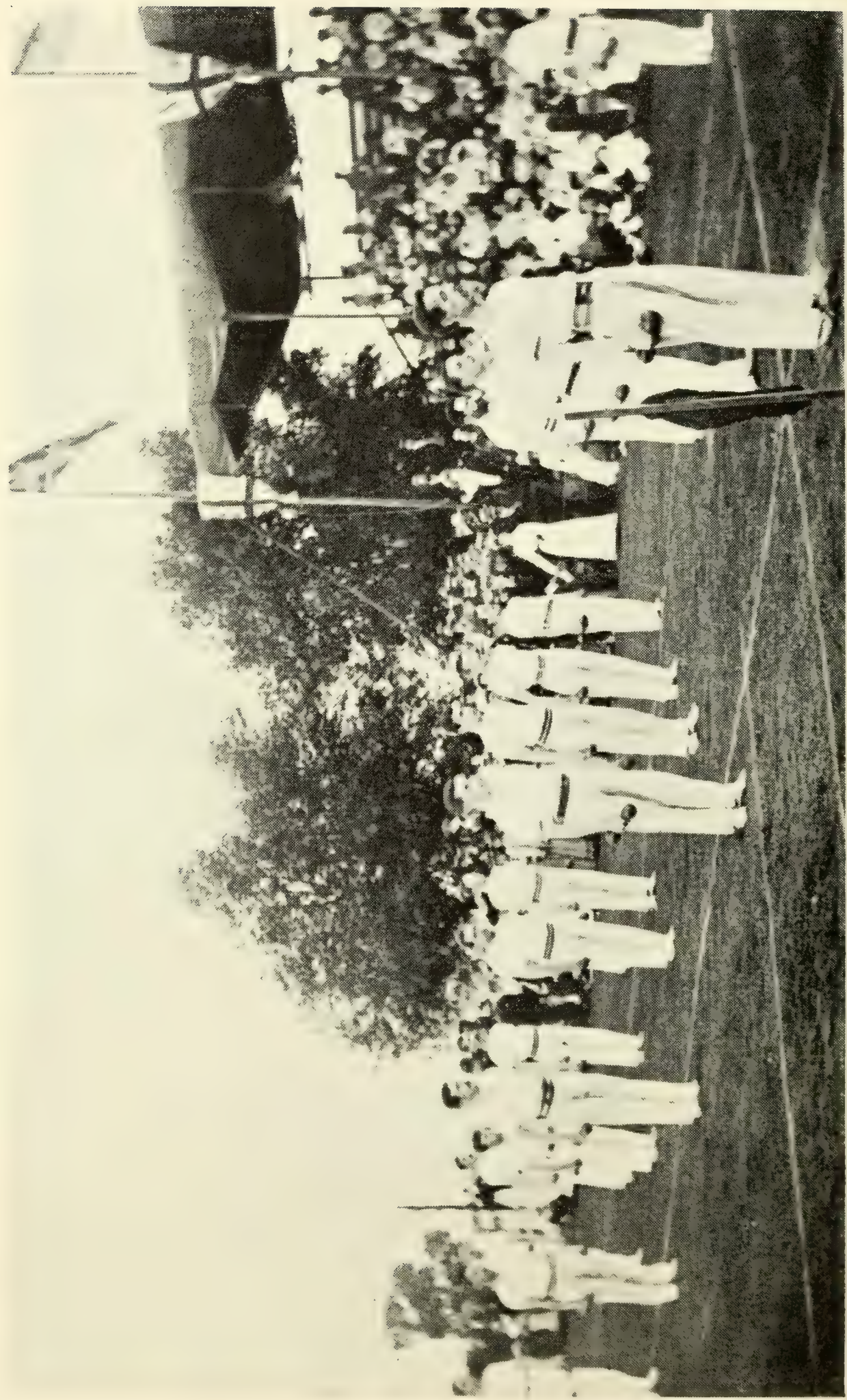
MAYPOLE DANCE BY LADY EMPLOYEES  
Wellcome Club and Institute





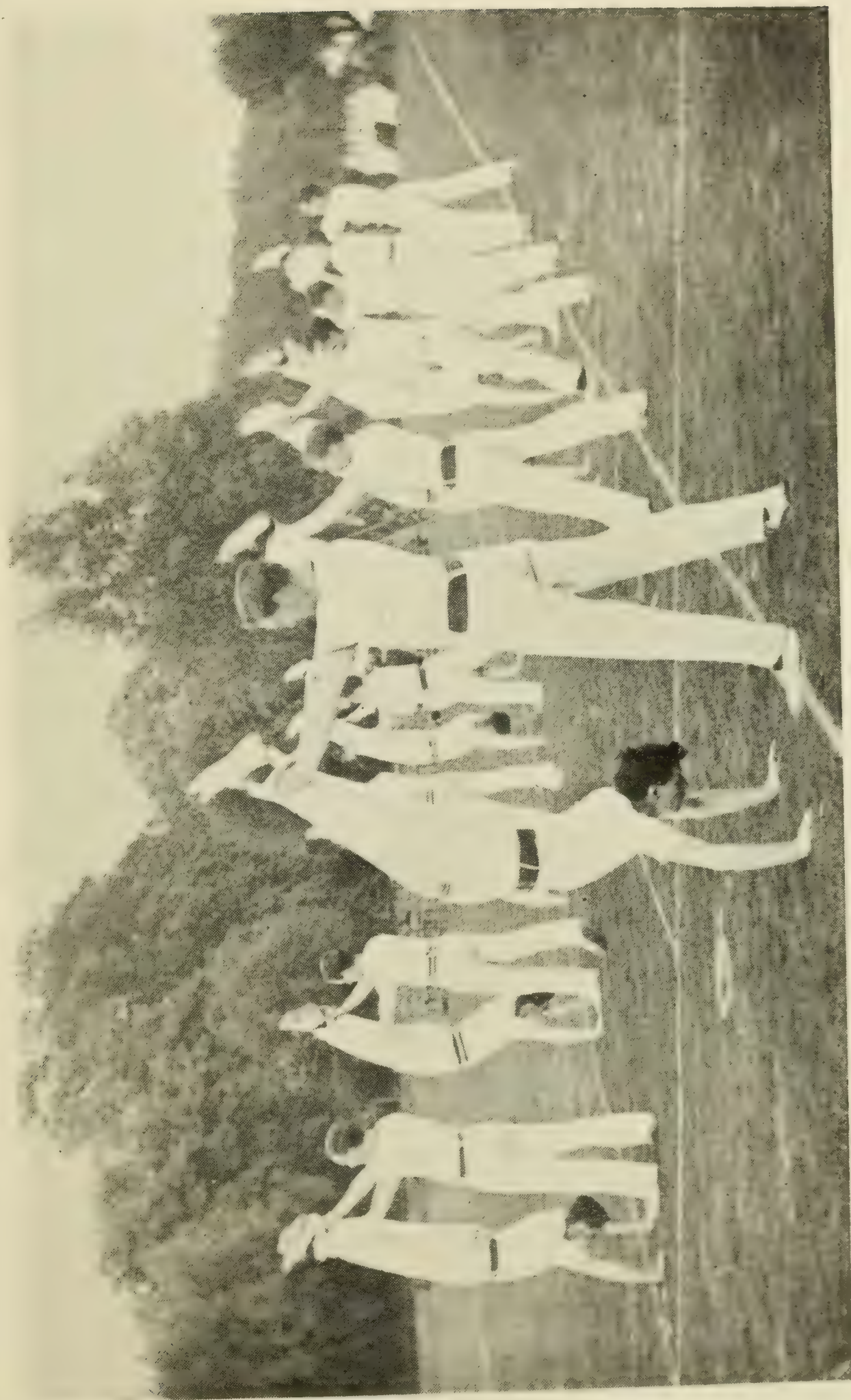
TUG OF WAR  
Inter-departmental—Wellcome Club and Institute





DUMB-BELL EXERCISES  
By Members of the Gymnastic Club—Wellcome Club and Institute





GYMNASTIC EXERCISES

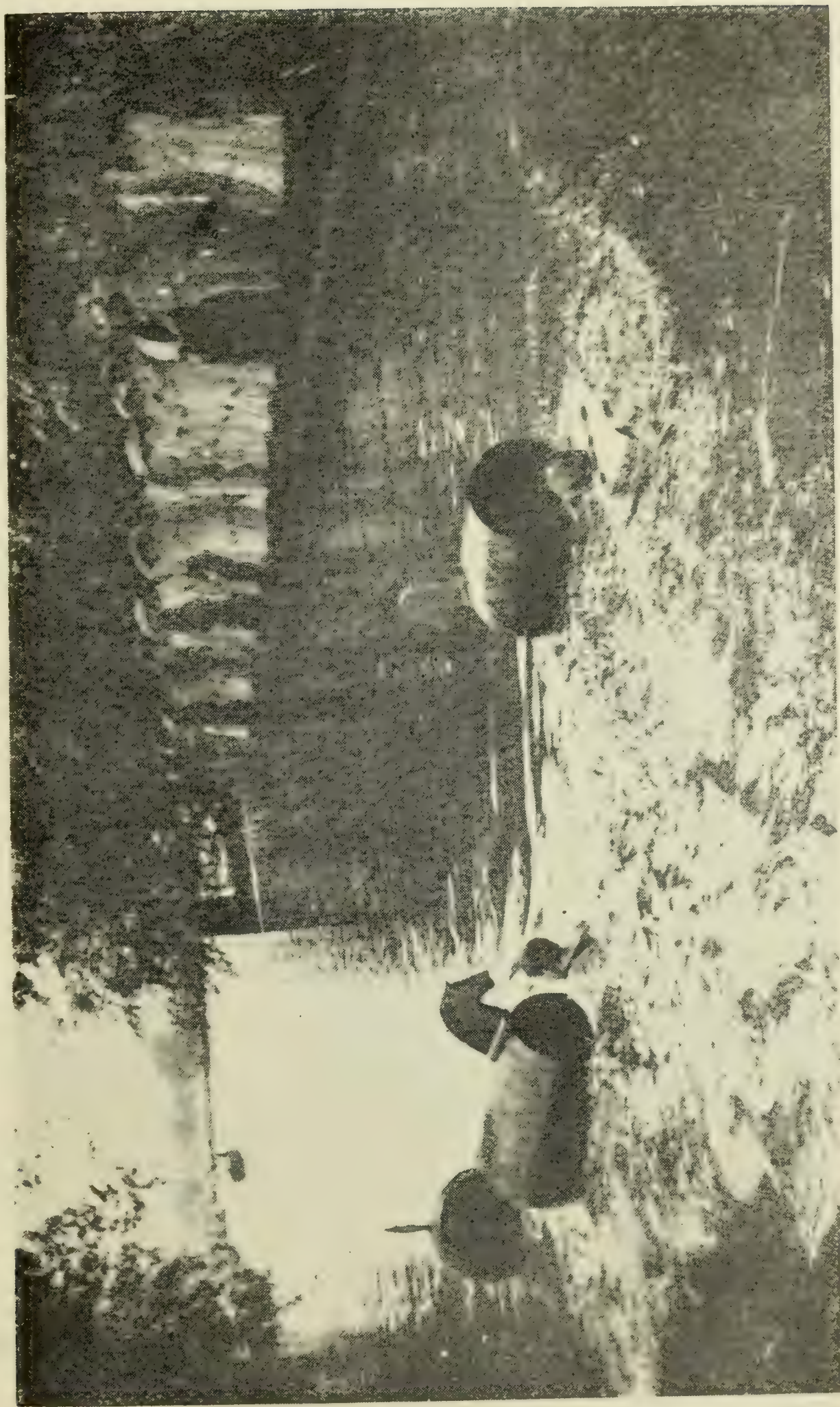
By Members of the Gymnastic Club—Wellcome Club and Institute





QUARTER-STAFF DISPLAY  
By Members of the Gymnastic Club—Wellcome Club and Institute





AQUATIC SPORTS

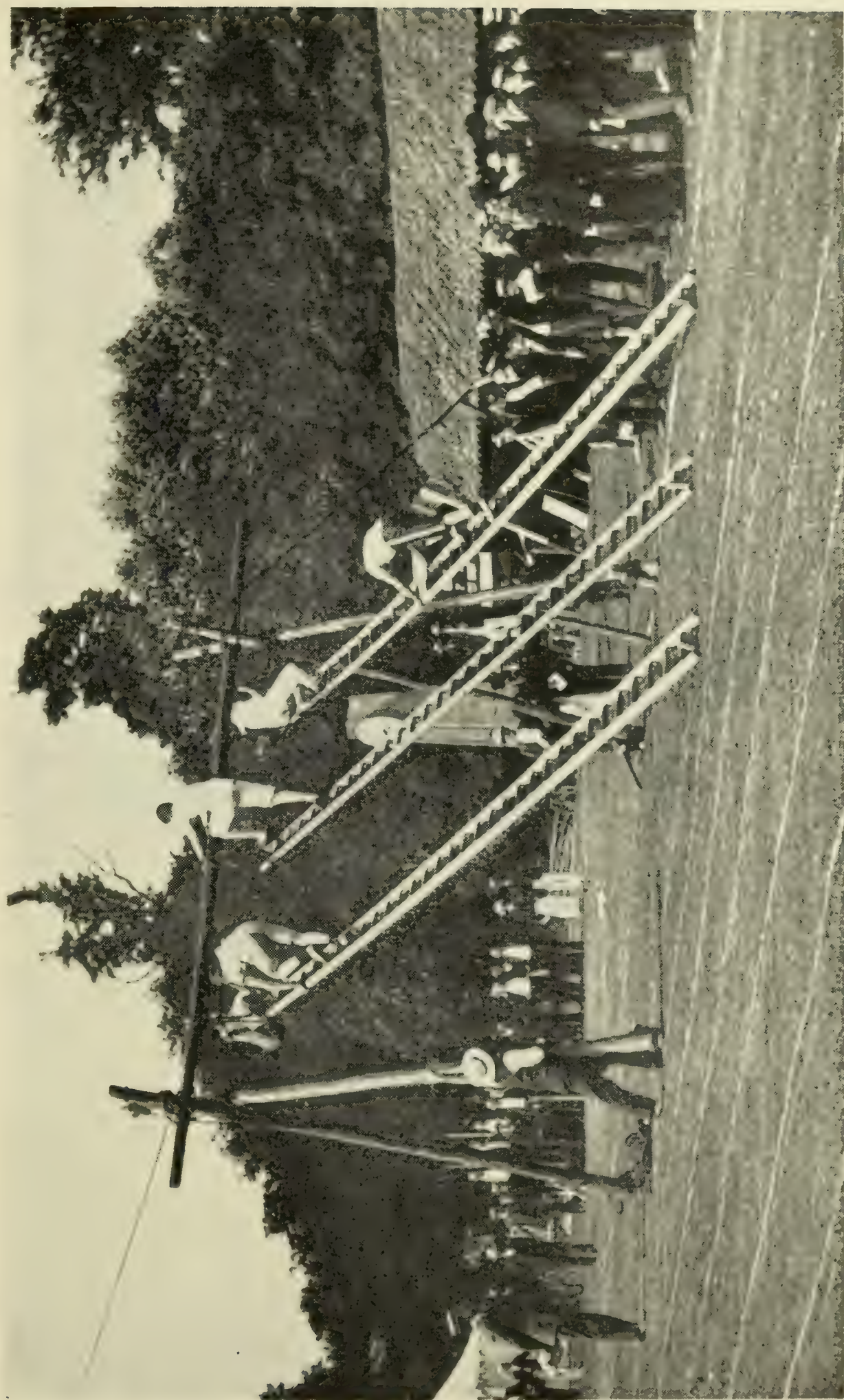
By Members of the Swimming Club—Wellcome Club and Institute





QUARTER-MILE HANDICAP RACE  
By Members of the Athletic Club—Wellcome Club and Institute





OBSTACLE RACE  
By Members of the Athletic Club—Wellcome Club and Institute

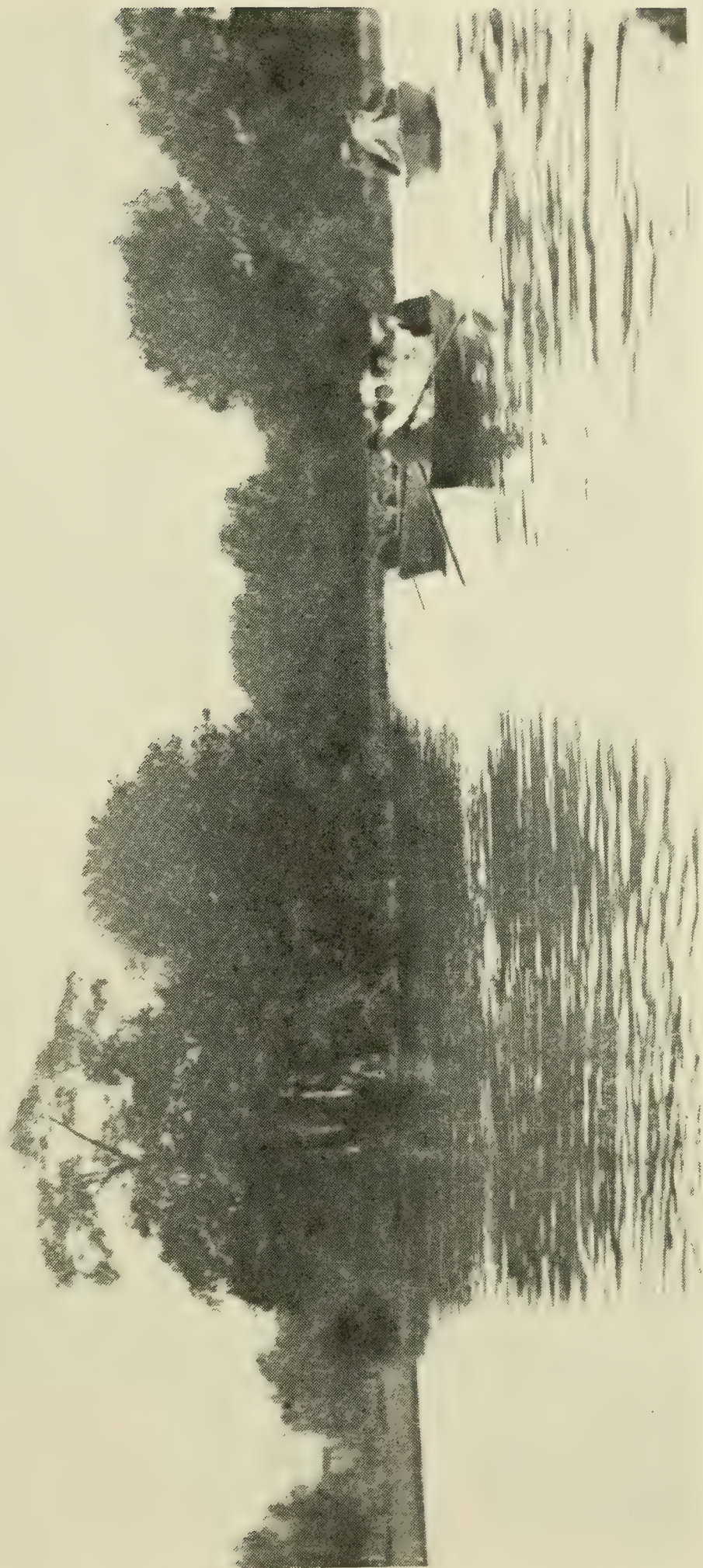




#### HOCKEY MATCH

By Members of the Hockey Club—Wellcome Club and Institute





BOATING ON THE LAKE  
Wellcome Club and Institute





WINTER SCENE  
In the Grounds of the Wellcome Club and Institute





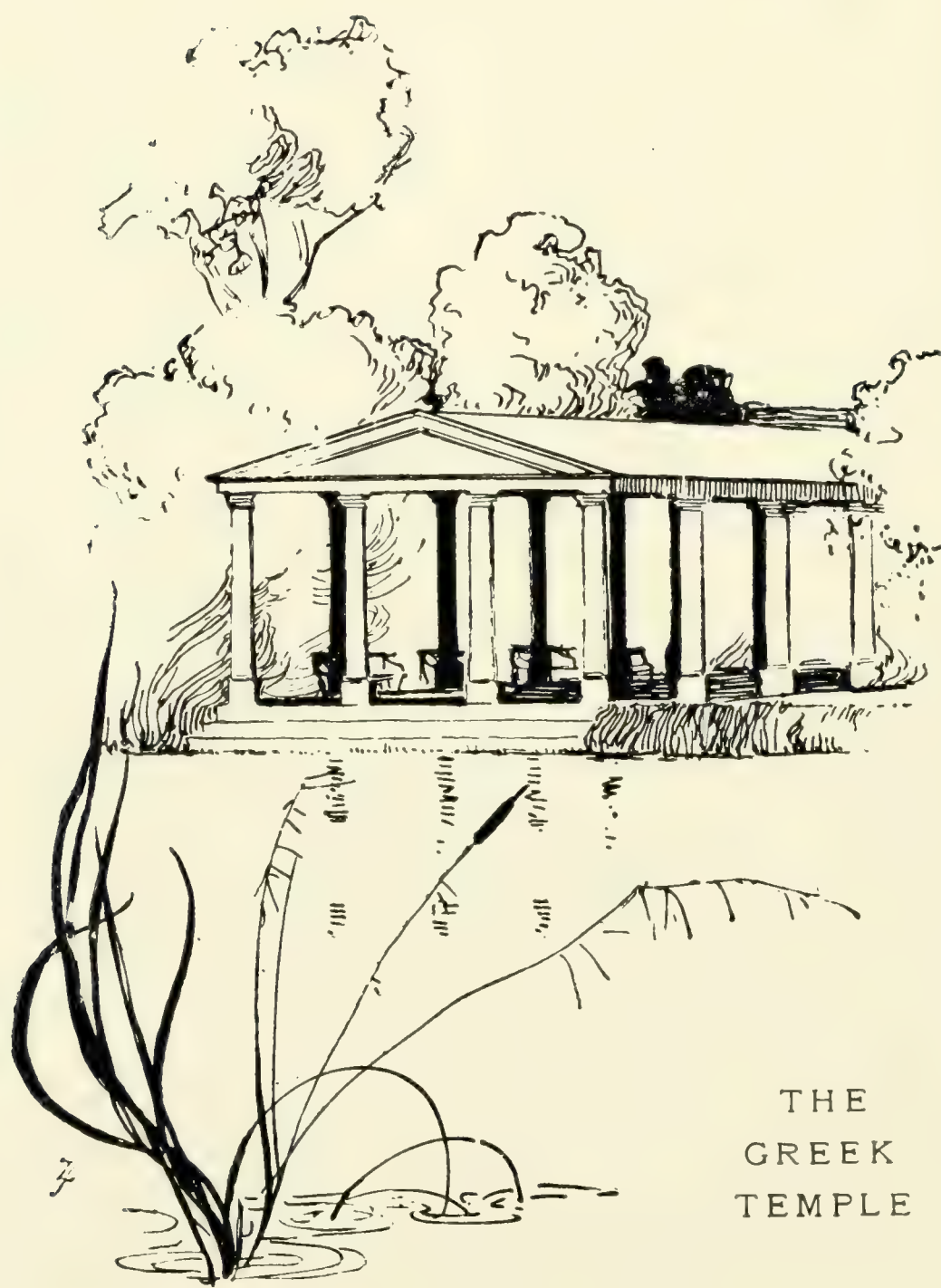
WHOLESALE CHEMISTS' AND DRUGGISTS' CRICKET  
CHAMPIONSHIP, LONDON

Won by the WELLCOME CRICKET CLUB five years in succession  
During these five years the Club's record in the championship  
matches was—

Won 31	Drawn 1	Lost 3
--------	---------	--------

At the end of the five years the Club withdrew from competition





THE  
GREEK  
TEMPLE

WELLCOME CLUB AND INSTITUTE

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